

STATE LIBRARY OF VENICE



3 0144 00134641 0

·PY E53a 17/4

v. 31

c. 2

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION



Digitized by the Internet Archive
in 2016

https://archive.org/details/pennsylvaniaangl00unse_27

150,51
1'6
(7)

PENNSYLVANIA ANGLER



JANUARY 1962



The Thanks You Get

The Pennsylvania Fish Commission may be excused if it comes to the conclusion that some anglers are not worth helping. Recently a mining company pumped toxic waste into the north branch of the Susquehanna River, killing 116,280 bass and walleyes and ruining the stream for at least three years (SI, Nov. 6). Instead of twiddling its thumbs in the manner of some fish commissions, the Pennsylvania group landed on the mining company with every legal means at its command and intends to bill it for the exact amount of fish killed.

For its pains, the commission now finds itself inundated with demands by Susquehanna anglers for refunds of their license fees. We admire Executive Director Albert Day's forthright stand on this matter, too. He told the anglers, in a nice way, to go whistle up a rainspout. "The position which you appear to take," he wrote each fisherman, "is that the unfortunate disaster can in some strange fashion be improved by financially penalizing the agency that has been working tirelessly to force those who are responsible for the tragedy to repair their damage to the river." He returned all the licenses and denied all the refunds. A tough cookie, Albert Day, and Pennsylvania is lucky to have him around.

(Editor's Note: The above editorial appeared in the "Scorecard" section of the December 18, 1961, issue of SPORTS ILLUSTRATED. Permission to reprint this item has been granted by SPORTS ILLUSTRATED.)

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director
DR. ALBERT S. HAZZARD
Asst. Director
WARREN W. SINGER
Assistant to Executive Director
PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief
Fish Culture
HOWARD L. FOX Superintendent
Real Estate and Engineering
CYRIL G. REGAN Chief
EDWARD MILLER Asst. Chief
Law Enforcement
WILLIAM W. BRITTON Chief
Conservation Education-Public Relations
RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913
DEWAYNE CAMPBELL Fishery Manager
451 Cannell Dr., Somerset, Pa. Phone: 5837

NORTHEAST REGION

H. CLAIR FLEGER Warden Supervisor
106 Young St., Honesdale, Pa., Phone: 253-3724
TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162
DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President Hawley
MAYNARD BOGART, Vice President Danville
JOSEPH M. CRITCHFIELD Confluence
WALLACE C. DEAN Meadville
JOHN W. GRENOBLE Carlisle
ALBERT R. HINKLE, JR. Clearfield
R. STANLEY SMITH Waynesburg
RAYMOND M. WILLIAMS East Bangor



JANUARY, 1962

VOL. 31, NO. 1

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 3 TRAWLING—Alfred Larsen, U. S. Bureau of Commercial Fisheries
- 8 ICE FISHING—photos by Johnny Nicklas, Pennsylvania Fish Commission photographer
- 10 AN ALBUM OF PENNSYLVANIA'S COVERED BRIDGES—Wilbert N. Savage
- 16 TACKLE TIPS—Ice Jigging Rod—Don Shiner
- 18 NOTES FROM THE STREAMS
- 20 BOATING
- 21 YOUTH OUTDOORS—Myron E. Shoemaker
- 22 THE FEMININE VIEW—Mary Ellen Jackson
- 22 FISH RECIPES
- 23 FLY TYING—Bill Cochran
- 23 OUTDOOR BOOKS

Front Cover

Winter Wasteland on Lake Wallenpaupack

Cover two

John Buck, Jr., misses one at Black Moshannon Lake, Centre County

Cover three

John Buck, Jr., hits several, same site

Cover four

January at Promised Land Lake

All photographs by Johnny Nicklas

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. *Second Class Postage paid at Harrisburg, Pa.*, and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. *NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.*



Figure 1. THE "ACTIVE"—exploratory gear research vessel, U. S. Bureau Commercial Fisheries, a converted 50-foot trap net boat used by the Bureau in its exploratory fishing operations in Lake Erie. Note the boom used in lifting bag of trawl aboard the boat.

Trawling . . .

a New Development in the Pennsylvania Commercial Fisheries of Lake Erie

By **ALFRED LARSEN**

**U. S. Bureau of Commercial Fisheries
(Formerly biologist—Pennsylvania Fish Commission)**

THE recent introduction of trawl netting for smelt to the Great Lakes by the U. S. Bureau of Commercial Fisheries may be an answer to the present economic plight of not only Pennsylvania commercial fishermen but to all Lake Erie commercial fishermen as well.

Recent trends in the Pennsylvania commercial fisheries have been toward a steady decline in availability of such choice fish as blue pike and whitefish and a tremendous increase in the less desirable and unmarketable species as smelt, gizzard shad and alewives. The

decline in the lakes' blue pike and whitefish populations is a result of failure of reproduction in recent years. The causes for these failures are not as yet clearly understood, but are believed to be related to changing environmental conditions brought on by the increased fertility of the lake. For the past several years Pennsylvania commercial fishermen have subsisted primarily on catches of yellow perch, a medium priced fish, which have been and are at the present at a high level of abundance in the lake. The loss of the principal com-



Figure 2. LOWERING a commercial size experimental trawl for smelt in Pennsylvania waters of Lake Erie from the ACTIVE. Note the "cone-shape" of the trawl and the floats used to buoy up the top line or "headrope" of the trawl mouth. (Photo by Al Larsen.)

mercial species has drastically reduced much of the commercial fishing operations carried on in Pennsylvania waters.

Smelt, considered an excellent food fish of delicate flavor, have been harvested commercially in Lake Erie since the early 1940's principally by Canadian fishermen in the Point Pelee area which is located in western Lake Erie. During the spring spawning season annual production of smelt in this region has approached several million pounds. Smelt have never been exploited by Pennsylvania fishermen because of the inadequacy of their present equipment for taking the fish in commercial quantities.

Prior to the recent introduction of trawls to Lake Erie, principal gear used in harvesting smelt have been small-mesh pound nets, trap nets and seines. The fish have also been taken quite heavily in gill nets, but because of the labor involved in removing the smelt from the fine gill net twine this equipment is not used. It has been for that reason the Pennsylvania commercial fishermen, predominately gill net fishermen, have had little regard for smelt because they frequently foul fishermen's nets which have been set for other fish.

With the introduction of trawls to the area, commercial fishermen are now able to economically harvest smelt which have been found available in substantial quantities in Pennsylvania waters. To cite an example of the present abundance of the smelt population in Lake Erie, an exploratory fishing gear research vessel of the Bureau of Commercial Fisheries, the "Active," during October of 1959 recorded, by means of its echo sounder, a continuous layer of smelt 6 feet in depth reaching from Ashtabula, Ohio, to Erie, Pa., a distance of approximately 35 miles. A Canadian experimental vessel caught some 5,000 pounds of smelt in a 45-minute tow with its trawl in the

Figure 3—SCHOOLS OF SMELT located by a depth sounder near the bottom of Lake Erie, off Erie, Pa., at a depth of 75 feet. Smelt schools can be identified as the lighter vertical tracings above the darker, almost black, tracings indicating the bottom. (Photo courtesy U. S. Bureau Commercial Fisheries.)

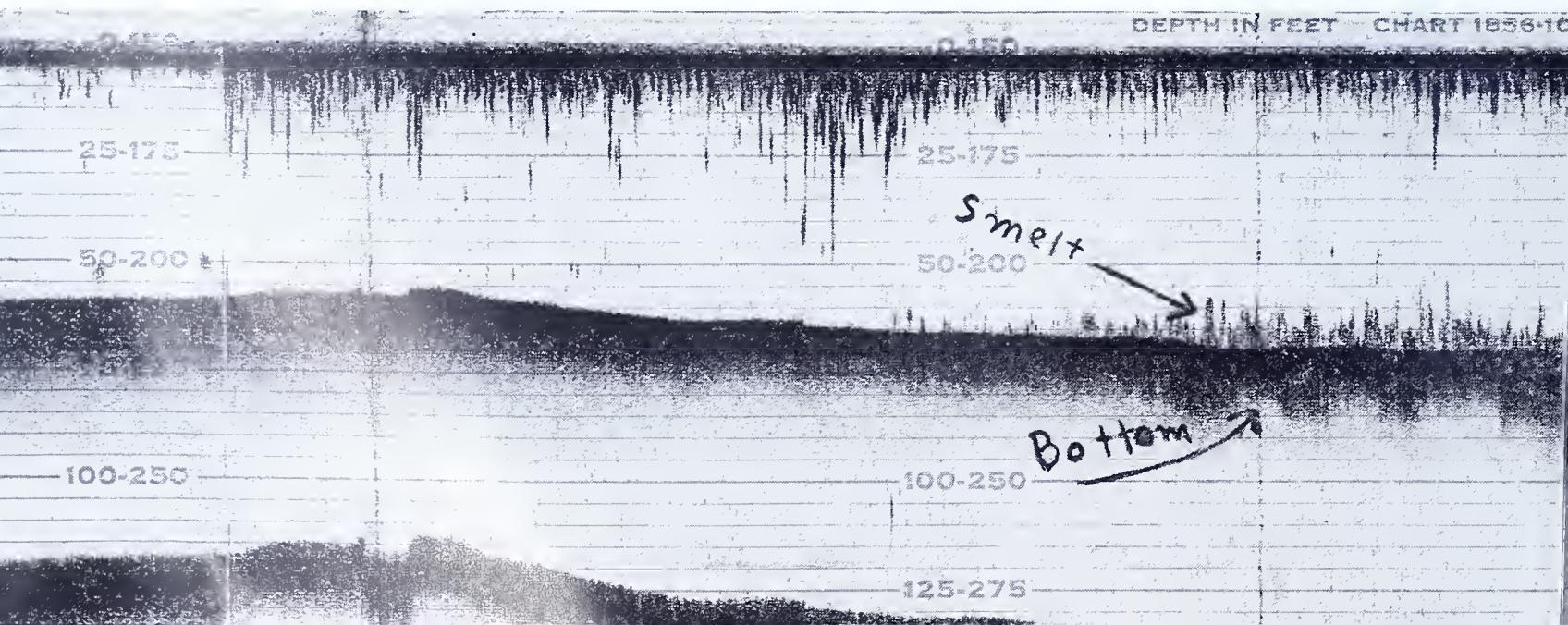
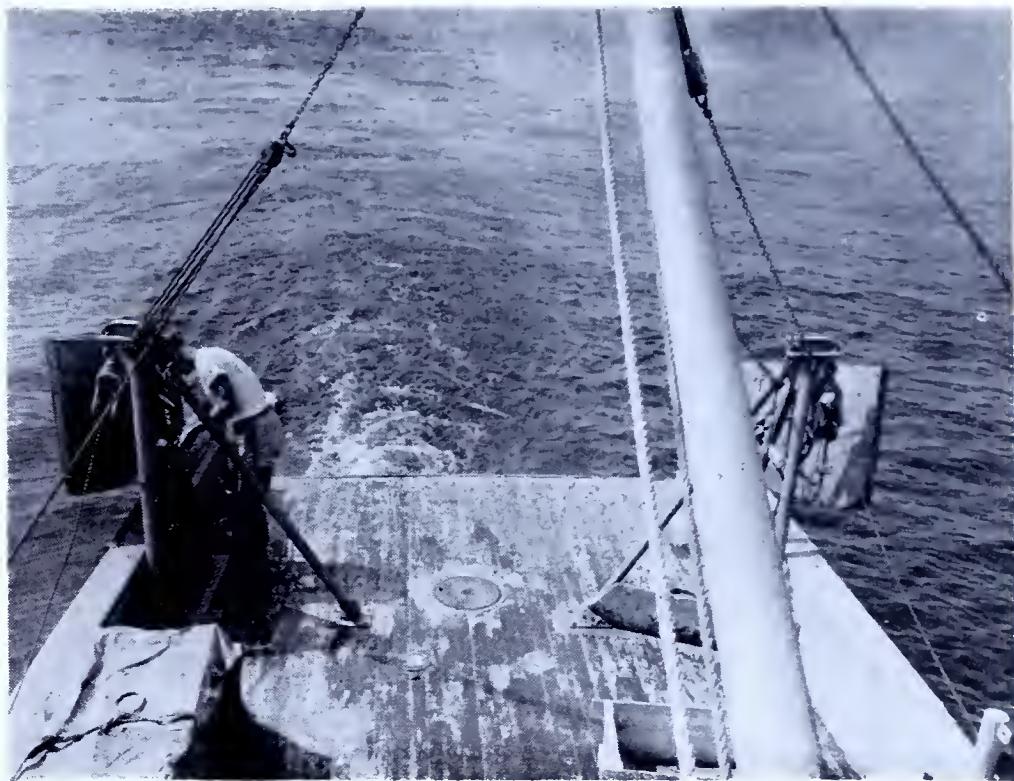


Figure 4—TRAWL DOORS or "otter boards" are used to spread mouth of trawl in a horizontal direction as net is dragged along lake bottom. Heavy steel runners weigh down doors. Note stanchions which support heavy doors on the vessel. In photograph, trawl has just disappeared below surface of water and trawl doors are in process of being released. (Photo by Al Larsen.)



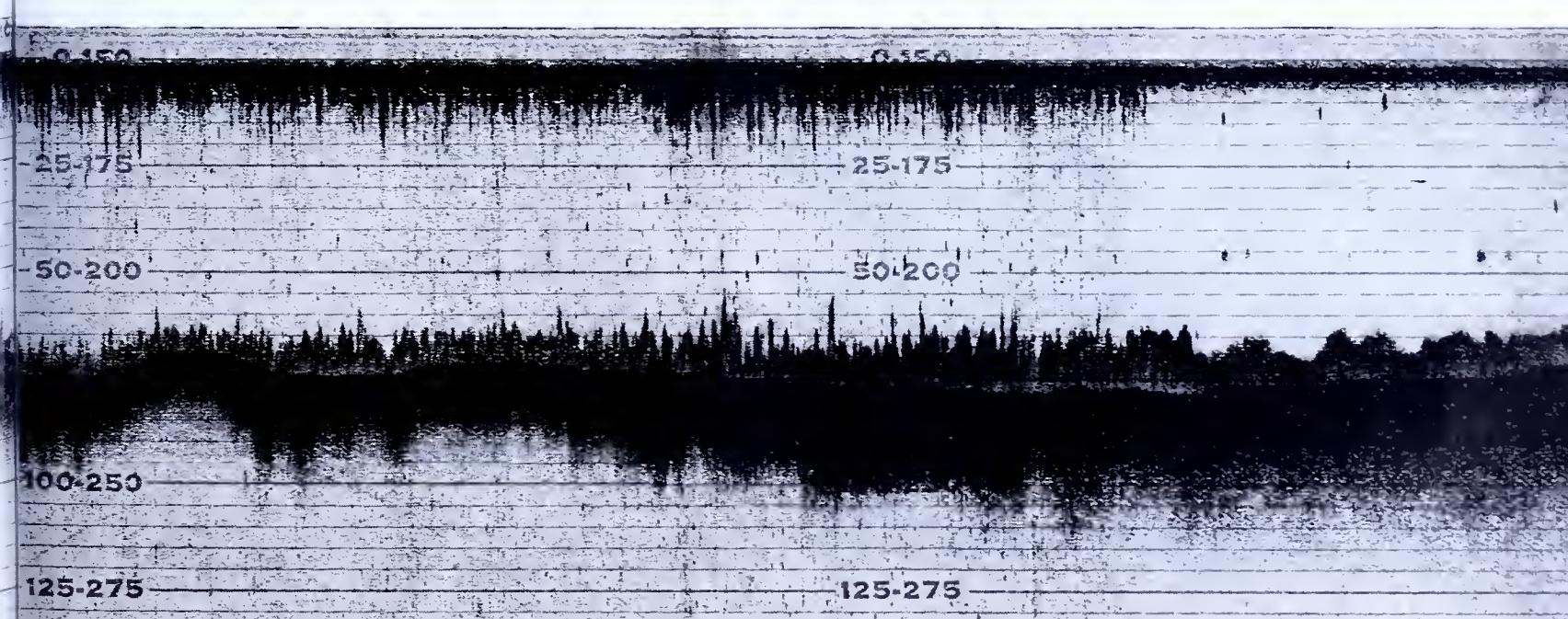
vicinity of Port Dover during the same period. The use of trawls will also permit the taking of smelt on a seasonal basis, where before major production occurred only during the spawning season when the smelt moved inshore.

Essentially, trawls are "cone-shaped" nets (see figure No. 2) which are dragged along the bottom of the lake through areas of heavy smelt concentrations which are usually found on or near the bottom. The mouth of the net may be 65 feet and over in width and is held open by the action of weighted doors called "otter boards" which are dragged ahead of the net. (See figure No. 4.)

The top line of the net mouth, called the "headrope,"

is buoyed up by floats and the bottom line, the "foot-rope," is weighted, usually with links of chain. As the trawl moves through the water, the fish are collected in the rear end or "cod end" of the net. The mesh size of the "bag end" or "cod end" of the trawl is of a smaller size (1½ inch stretched measure has been found to be ideal for smelt) than the main body of the net to prevent escapement of the fish. The trawl is raised to the surface and aboard the boat by means of a winch. The fish are then removed from the rear or "cod end" of the net.

More perishable than other fish, smelt are immediately packed in ice upon removal from the net. This is particularly important when trawling during



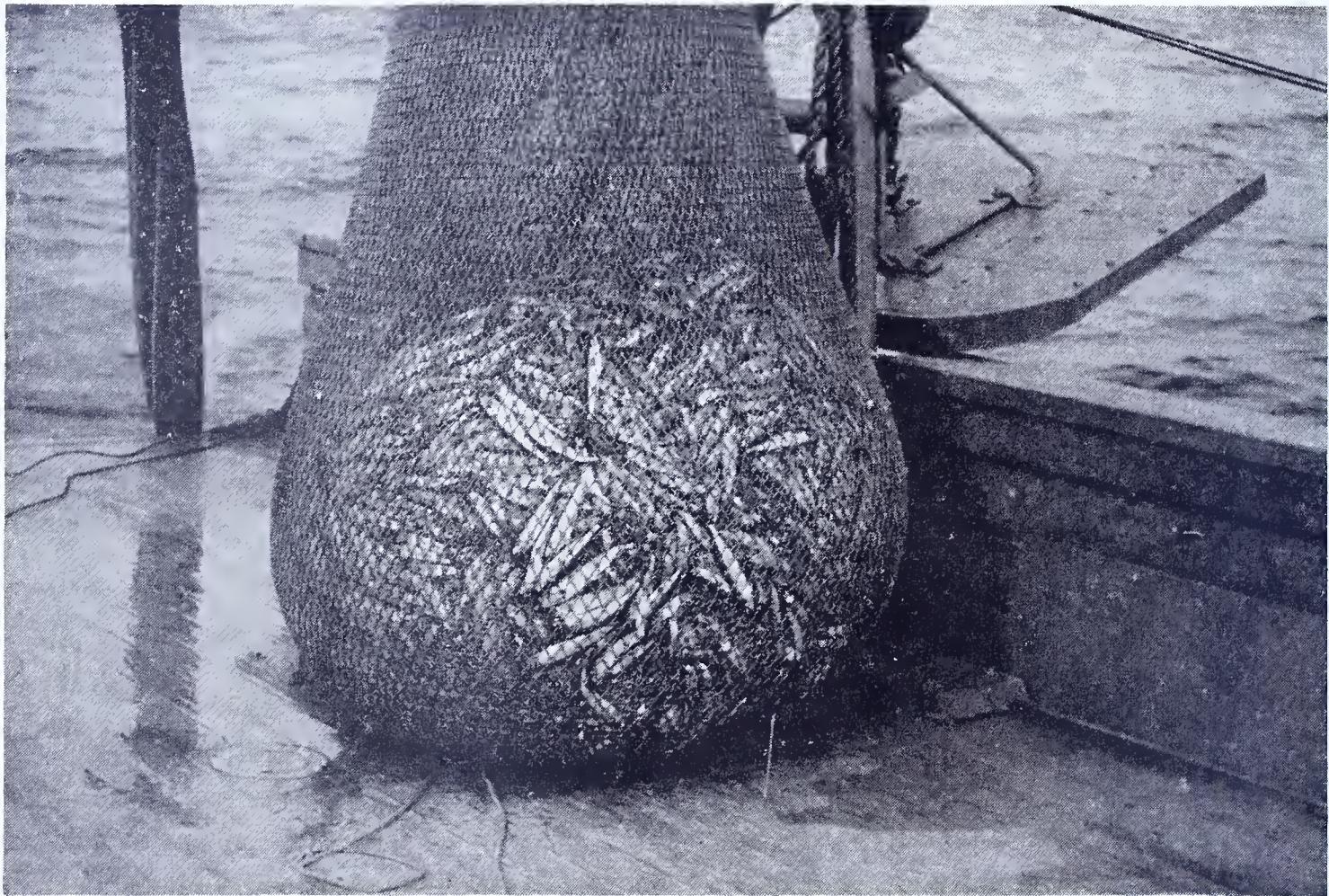


Figure 5—**COD END OR BAG** of trawl with a good catch of marketable size smelt taken off Erie, Pa., by the "ACTIVE." Based at Erie, the vessel is operating in Lake Erie to determine commercial availability of smelt found in substantial quantities. Few other species of fish have been taken in areas of smelt concentration. (Photo courtesy U. S. Bureau of Commercial Fisheries.)

the summer months. As an aid in locating smelt schools in the lake, commercial fishing vessels are equipped with depth sounders of the graph recorder type (see figure No. 3). This instrument gives a graphic illustration of the lake bottom and will also record schools of fish if present. This piece of equipment is almost a prerequisite for those engaged in the trawling fishery. It not only eliminates hours of searching for smelt schools but also indicates obstructions on the lake bottom which could severely damage the trawls. Trawling equipment when installed aboard present craft does not prohibit the use of traditional fishing equipment such as gill nets and trap nets and thus provides greater use of the vessel on a season-long basis.

Like any new development in a fishery, opposition over the use of trawls has already been expressed. It is felt by some individuals and groups the use of trawls may be damaging to other fish stocks, principally young fish. Preliminary data gathered by the Bureau's exploratory fishing research unit in the U. S. waters of Lake Erie indicate that very few other fish (about 1 per cent), are taken in the trawls when fishing for smelt.

Trawl data collected in Pennsylvania waters of the lake during 1960 by the Fish Commission's research vessel, the "Perca," revealed smelt comprised over 86 per cent of the total catches.

Summary of trawl catches made by the "Perca" in Pennsylvania waters of Lake Erie, 1960:

Total No. of trawl tows completed—11 (August 11—October 27)

Average length of towing period—30 minutes

Total catch (numbers)—8,896

smelt	7,733
-------	-------

yellow perch	362
--------------	-----

trout perch (minnow)	783
----------------------	-----

common sucker	1
---------------	---

burbot	12
--------	----

white bass	4
------------	---

sheepshead	1
------------	---

Concern has also been voiced by some Lake Erie fishermen, both sport and commercial, who believe the explosive increase of smelt in Lake Erie in recent years has been responsible for the decline of such fish as blue pike, whitefish and walleyes because they (smelt) feed

heavily on the young of these fish. In the recent seasonal study of the feeding habits of smelt in Lake Erie, undertaken by the Ohio State University and sponsored by the U. S. Bureau of Commercial Fisheries, it was found that invertebrates were the principal food organisms found in the stomachs of smelt. It was apparent from the study that during the spring and summer, while other food items were more abundant, fish amounted to small proportions at first but increased as the season progressed. Apparently smelt were eaten by other smelt, feeding upon the young of the year. Other recognizable fish remains were those of minnows. The above findings are in agreement with seasonal observations made of the food eaten by smelt in Pennsylvania waters of Lake Erie several years ago. Principal food organisms recovered from the stomachs of smelt in our waters at that time were also invertebrates (Daphnia, Gammarus, *Mysis relicta*). The identifiable fish remains were those of the emerald shiner minnow and young-of-the-year smelt.

There is no doubt smelt do feed occasionally on the young of other fish. However, on the other hand, smelt are fed on heavily by such important fish as walleyes, blue pike, white bass, yellow perch and burbot which would indicate the smelt to be a valuable forage fish.

Significant technological advances have been made in the processing of smelt, particularly in Canada. Where they were dressed out before by hand labor, a tedious job because of the small size of the fish—machines are now employed capable of doing a complete job of cleaning the smelt and can process several tons of the fish in a matter of several hours.

Most of the smelt harvested in Canadian waters of Lake Erie are processed, ready for consumer use, and put up in frozen package forms, shipped to the larger cities principally those of the United States.

Pennsylvania commercial fishermen cannot afford to remain idle waiting for the return of the blue pike and whitefish, but must change with the trends of the fisheries and make use of the present fishery resources of the lake as the Canadians have done with the smelt. On the basis of research data collected during experimental trawling, the Commission has relaxed its regulations in order to permit the fishermen to take advantage of the new fishery. In addition to the reluctance on the part of most commercial fishermen to the putting aside of traditional fishing methods to employ new gear, the major obstacles to be overcome in the development of the fishery in Pennsylvania are those of processing, storage and market development. Progress in that direction is already being made.

Figure 6—SPORT FISHERMEN dipping for smelt in Walnut Creek, tributary to Lake Erie. Spawning runs of smelt into Pennsylvania tributaries have been irregular. Major spawning areas of smelt in Lake Erie are located on sand bars, beaches of western Lake Erie near Point Pelee in Canadian waters. (Al Larsen photo.)



Figure 7—SCHOOLS OF SMELT moving upstream to spawn in Crooked Creek, Pa., tributary to Lake Erie at 3 p.m. on May 3, 1960. Movement of smelt upstream during daylight hours is highly unusual as upstream migrations usually occur during darkness or shortly thereafter. Extremely heavy spawning runs of smelt occurred in all major Pennsylvania tributaries to Lake Erie during the spring of 1960. Peak of spawning run was from April 27 to May 4. (Al Larsen photo.)



Ice Fishing . . .

—All photos by Johnny Nicklas



ICE FISHING KIT includes minnow bucket, charcoal stove, tip-up, ice cleats, spud bar, ice scoop, jig rod (see how to make one by Don Shiner elsewhere in this issue). Ice fishermen spurn heavy, moisture collecting garments, prepare to go light for action!



John Buck and Charles Fisk check perch fishing lures on Lake Jean, Sullivan Co. Both "icers" are from Sweet Valley, Pa.



ICE FISHING AT RAYSTOWN DAM under a tempestuous sky. The ice angler is Warden Supervisor Harold Corbin, his assistant is a Basset hound named GUS. Gus has a sharp eye for all ice fishing activities, has a keen appetite for fish. You've got to watch this fellow every minute or he'll eat the minnows right out of your minnow bucket, snap at the perch you hook. "Just a 'fish-crazy' pup," says Johnny Nicklas, Fish Commission photographer, who took these pictures.





HOLE through ice with spud bar, keep
ree of ice with scoop (revolting job), jig
p and down and around . . . you feel a



JIG IT UP! Despite freezing hands, try
to pay attention.



PERCH OUT! And there you are, nothing
it. Fun for the most eager tyro!



K YOUR HOOK! Be certain you have it
sharp . . . carry a hone . . . it pays off!



DEEP FREEZE your catch by tossing them right out on the ice. Straight
from fryin' pan back home these sweet-tastin' fish pass the palate with
maximum eating pleasure.

Ice fishermen are reminded their 1961 fishing licenses *will not expire* until February 28, 1962. The new 1962 licenses will be available prior to this date.

An Album



—Johnny Nicklas photo

COVERED BRIDGE building hit an 80-year cycle in Pennsylvania of construction that got underway about 1810. Outstanding engineers of the period were: Palmer, Burr, Pratt, Whipple, Town and Long. Beautiful structure, typical of those from a rapidly fading era, is bridge over Maiden Creek near Virginville, Pa.

Pennsylvania's Covered Bridges

By WILBERT N. SAVAGE

MENTION covered bridges to almost any three-score-and-ten old-timer, and you're likely to set into motion his eager, "I recollect when" preface to some brisk tales of yesteryear. With an I'm-in-my-glory-now expression he'll proudly take you back to rollicking boyhood times when the phaeton buggy and the wicker-seat sleigh set the pace in an unhurried period. For the covered bridge echoes sights and sounds of another era—the day of the muzzle-loading rifle and the brown coffee mill; the broad-axe and the spinning wheel; the rutted mud road and the husking bee; the water-powered gristmill and the country blacksmith shop.

Today, the missile-and-rocket age notwithstanding, Pennsylvania enjoys the distinction of having within her boundaries more of the old roofed spans than any other state. Down the alphabet, from Conewago Creek in Adams County to Yellow Breeches Creek in York County, we can locate covered bridges still in use. Some, like the 26-foot one on Rock Creek in Columbia County, are short enough to challenge good broad jumpers. Others, such as the one spanning the Tulpehocken in Berks County, reach within inches of the tape's 200-foot mark.

Many counties have no remaining covered bridges, while a few have twenty or more. Westmoreland County, in which the author lives, has but one of the old spans left. It is located on Sewickley Creek between West Newton and Yukon. At one time it was known as the Bell's Mill Bridge, named for the family operating a gristmill there. It was built in 1850 by Daniel McGain and is presently in much better condition than the murky, polluted creek it faithfully spans. Counties still having ten or more of the roofed bridges of yesteryear include Bedford, Greene, Adams, Columbia, Somerset, Washington, Lancaster and Perry.

A few of the covered bridges—frequently called "timbered crossings" in early times—have established startling periods of longevity. One, on Conewago Creek in Adams County (Legislative route 01018), was built in 1836 during the administration of Martin Van Buren. How appropriate to hail it as a weathered memorial to the heyday of Pennsylvania's Conestoga Wagon!

One of Berks County's covered bridges was built in 1834 (Legislative route 06039), but the last check made

by the author was in 1955 and it may no longer be standing. Even if it isn't, dwell on the fact that there were just 26 states in the Union when the bridge was built, and that the California Gold Rush was not to occur for another 15 years! Among the newer covered bridges we find one on Chambers Run in Greene County that was built in 1910; and one on Mahantango Creek in Snyder County that first accepted traffic in 1907.

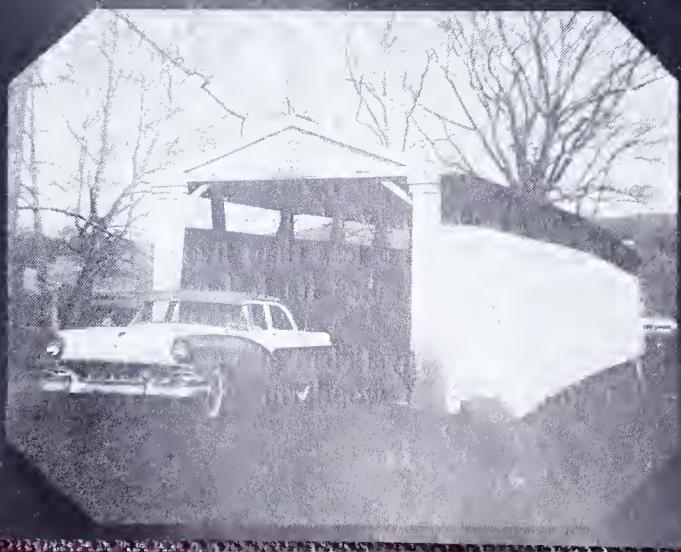
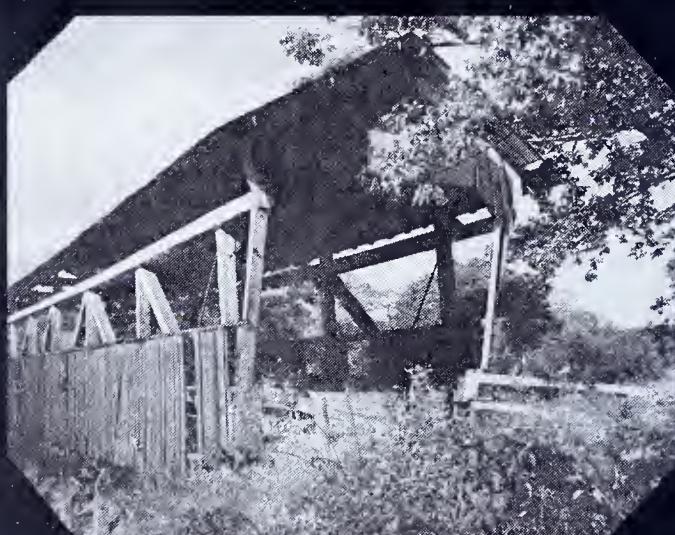
The State's most famous covered bridge is the one spanning Valley Creek at Valley Forge. Actually, it is located very close to the original site of the old forge which gave the area its name. Millions of Valley Forge visitors have crossed the bridge, for it carries the Yellow Springs Road that leads to the quarters of Lafayette, Stirling, and other men of valor during the Great Winter Siege.

Another popular covered span is King's Bridge, located on State Route 653 in Somerset County about eleven miles west of the county seat town of Somerset. While it has been by-passed by a modern steel-and-concrete structure and is not open to traffic, it is in good condition and currently serves a local farmer as a storage shed for farm implements. It spans Laurel Hill Creek, a good trout stream, and was a part of the old Clay Pike road system that linked the counties of Somerset and Fayette. A sign on the east end tells visitors it was rebuilt in 1906. Former Vice President Richard Nixon owns a painting of the bridge, done in oil by Somerset County's beloved 85-year-old artist, Mrs. Lila B. Hetzel.

Speaking of Somerset County. . . . After having searched out covered bridges in four states, it is the author's opinion that for variation in near-kaleidoscopic scenic beauty the covered spans of Somerset County are difficult to surpass. For, snugly tucked away in the rolling hills of this region of fine farms and producing maple groves, one can find roofed bridges having mellow charm and picture-card settings to rival any of New England's storied spans. The county's Laurel Hill Creek was, until recently, bridged by no less than five of the weathered structures, but time takes its toll and now just four remain.

There's a haunting kind of mysticism about covered bridges—a rustic atmosphere of wonderment and awe

An Album of Pennsylvania



nia's Covered Bridges



Notes . . .

from an Album of Covered Bridges of Pennsylvania

Top row pictures (left to right)

1—PICTURE POST CARD setting—Packsaddle Bridge on Brush Creek about 2 miles east of Jonsburg, also east of Meyersdale, southeast of Berlin. This bridge is not easy to find. Good trout stream.

2—COLORFUL Beachdale Bridge, just off Route 219, northwest of Meyersdale. It spans Buffalo Creek, is in excellent condition, can easily handle a 10-ton load. It is on Legislative Route 55036. Farmer Charles Burkholder, who lives a stone's throw away, was hired recently to paint the bridge. It wears a new coat of red and white. The bridge is not far from village of Garrett. Photo angle makes it appear short, it is actually 70 feet long. Built in President Grover Cleveland's administration, the structure may not be as old as some in Pennsylvania but the setting of pines, apple and maple along the deep, blue creek is extremely beautiful.

3—PATRIOT'S BRIDGE spans Valley Creek about one-half mile above the old forge location for which famous Valley Forge was named.

4—NEW BALTIMORE Bridge spans Raystown Branch, Juniata River on Legislative Route 55051 . . . red, white trim, in good condition, used regularly. New Baltimore is small country village that can be seen from Pennsylvania Turnpike. A good gravel road leads to bridge on extreme eastern edge of county next to Bedford County line. Tolls were in effect at the time most covered bridges were built. In most instances the toll-man quit at sundown . . . a financial relief to young swain and his girl returning from a late hour husking bee via buggy toll free!

5—LAUREL HILL CREEK, at one time, had 5 covered bridges spanning its waters. This one below Whipkey Dam is passe and only four remain. It was in fair condition when torn down, was red and white, 105 feet long. Replaced by modern bridge on Route 653, about 13 miles southwest of Somerset.

Middle row (left to right)

1—BREATHTAKINGLY BEAUTIFUL is State Bridge on a dirt road west of Shanksville, no route number, hard to find. Floods have damaged it but its idyllic fascination remains. It crosses Stony Creek, excellent trout stream. One red, old bridge is badly weatherworn. (Photo by Stagner.)

2—HURRICANE HAZEL destroyed this lower bridge on Coxe's Creek in October 1954. Slowly but certainly these old covered

left by these spectres of a vanished era.

The first American covered bridge on record was built, not in New England, but over the Schuylkill River at Market Street, Philadelphia, in 1804. It was designed and built by Timothy Palmer, and was equipped with pedestrian footwalks. It was a long bridge, dressed up with town latticework and other fancy adornments, and bore the shocking cost tag of \$150,000! (Average cost of a covered bridge 65 to 90 feet long: \$4,000 for a first-class job that required eight

landmarks are fading from Pennsylvania's Yesteryear.

3—CAMERA ENTHUSIASTS will find countryside surrounding this old bridge a dream. The bridge spans Ben's Creek, two miles south of Johnstown. It is in excellent shape, wears fresh coat of red and white paint, was in existence during Johnstown Flood in 1889 (not in path of flood waters). Can be reached just off U. S. Route 219.

4—ON WAY OUT, this covered bridge at Kantner, off Route 30, is not far east of Stoystown. Believed to have been built long before Civil War times. Bridge spans Stony Creek, good fishing here. Traces of red paint remain. Take your camera, a real country old-time blacksmith shop is nearby.

5—EARLY SPRING at Upper Humbert Bridge on Laurel Hill Creek, one of four remaining. In fair condition, it has stone support built up from creek bottom to center. It is a vital structure for a few families living on the other side the creek. Nobody can recall when it was built but believed to be nearly 100 years old. Still strong, nearby sawmill operator frequently hauls logs across. Still shows red and white paint. It is just off Legislative Route 55030 at Humbert about 3 miles north of Ursina. Good trout section.

Lower row (left to right)

1—ONE HUNDRED TEN years old, the last covered bridge still in use in Westmoreland County. It spans Sewickley Creek not far from West Newton. Painted white rather than traditional red and white it is of "camel-back" construction with center raised slightly higher than ends.

2—GOOD CLEARANCE on this old baby known as Kammer Bridge, northwest of Fairhope on Legislative Route 55028. It spans Brush Creek just below Packsaddle Bridge and difficult to find.

3—NO PAINT, but sturdy, this covered bridge is about one mile west of Shanksville, across Stony Creek, on gravel road. Located above State Bridge on Legislative Route 55068. Timbers are in excellent condition.

4—ONLY COVERED SPAN left over Coxe's Creek south of Somerset just off Water Level Road. Not a long span but well constructed.

5—BARRONVALE Bridge is almost 160 feet long, in fine condition. Old water mill close by but wheel is gone. This bridge spans Laurel Hill Creek a mile above King's Bridge.

to twelve months to put up. Specifications generally required a bridge to be "a load of hay wide"—about ten feet on the inside—with a vertical clearance of 11 to 11½ feet.)

But this was not to have the honor of being the longest covered span in the State and perhaps the Nation, for this distinction was to be reserved for the "camel-back" covered bridge that for many decades stretched nearly seven-eighths of a mile across the Susquehanna River at Harrisburg. (Camel-back refers



SO BELOVED are covered bridges in Somerset County, this miniature was created to span a small stream on the property of Dr. George Speicher near Rockwood.

to "a structural design which placed the center of the bridge at a higher level than either end. This engineering scheme provided extra rigidity to burden pressures through a graduated arch able by natural laws of resistance to counteract depressing forces with well-joined up-thrust architecture."

An 80-year cycle of covered bridge building started in Pennsylvania in 1810. It reached "boom" proportions, and by the end of the Civil War covered bridges in the State outnumbered other types three to one. For many decades the well-built structures were able to keep up with ever-increasing traffic demands. But vehicles and their cargoes became heavier as roads became better, and the usefulness of the covered bridge slowly began to diminish. Today, more often than not in areas still served by covered bridges, alternate outlets offering better roads and stronger bridges are the rule—even in remote rural sections—while that old creek-spanning community fixture casts its roof shade only on the lighter traffic.

How different the situation when the covered bridge was in step with the times! For the very heartbeat of the Penn countryside once depended on "the reliable new accommodations for crossing streams heretofore forded. . ." People used the bridges going to and from market, church, the mill, school, old-fashioned picnics, auctions, etc. Nineteenth-century records show that on a few occasions the covered bridge served as a market center, site for church services and weddings, and an emergency repair shop for broken wagons. Traffic flow was leisurely; no blasting horns made right-of-way demands. When the casual traveler or the fisherman was besieged by storm near a bridge, shelter was there for the taking.

Somehow—and quite frequently—angling and covered bridges are traditionally linked in both prose and verse. This is true not only in Pennsylvania, but wherever the bridges are known. Oldsters fondly recall barefoot days of boyhood when they "bro't fighting brookies from dark pools under the covered bridge" . . . and "bathed



EXACT REPLICA in form of mailbox is visited daily by the mailman on his rounds to the Stiteler farmstead near New Centerville, Pa. Note old split rail rustic fence in background.

and fished and even drank where the shimmering stream rested briefly 'neath the covered bridge." . . .

Or consider these lines from poet Agnes Phelan:

" . . . On summer eves we linger there
Below the wooded ridge,
Where trout leap from their shadowy lair
To snap at circling midge.
A veery sings, so sweet and low,
We watch the river's quiet flow
And mirrored in its sunset glow
The dear old covered bridge."

On and on could go nostalgic word-glimpses of covered bridges and the people who built and used them. Even when they are no more they are certain to be remembered in dramatic accounts of early State and National development. They will take their place in history with other important service centers—the community inn, the mill, the blacksmith shop. Various societies are putting up a fight to save some of the most scenic and historically important covered spans. But as many as eight a month are being lost in Pennsylvania alone. A few—destined finally to become unused relics—will be fully rescued from the modern concrete-and-steel onslaught. For the others it's just a matter of time.

Author's Note—Only about 300 covered bridges remain in the State. In 1952 there were over 400. The speed of their disappearance increases with each passing year.

Ice Fishing at Erie

The bay is covered with ice fishermen these days. And you can see almost everything in the world behind the windbreaks.

The windbreaks themselves are all types. There are the poles with canvas strung over them. Some have a home away from home made of metal with windows and everything. Bus Scott swears he saw one such place with windshield wipers on the windows.

One man takes his whole family out early Saturday and Sunday mornings and cooks breakfast. It takes a windbreak about nine feet long to protect all of them.

You see all types of warm clothing. Some men bulge out with the thick thermal underwear. Last weekend one man had electrically heated boots with batteries strung around his belt.

A couple days ago we talked to a couple friends who are ice fishing addicts. It must be a worse addiction than golf. They say it is the greatest sport in the world.

They explained that you don't get cold. You have the stove to keep the outside of you warm and spirituous liquors to keep your blood circulating.

You might see flags flying from some of the wind-breaks. These are to inform friends who were going to meet you there, that this is the spot. The bay is like Grand Central Station on a good day and the wind-breaks look alike.

Ice fishing isn't as simple as it sounds. For one thing every man has invented his own tool for knocking a hole through the ice. There are augers and spears but one thing does not work, a hatchet.

If you happen to hit a spot and the fish start biting you have to be calm and collected about it. You almost have to sneak the fish off the hook.

If you aren't careful forty thousand other guys will come running and drill holes all around you. You might even find yourself on an ice island.

It must be a lot of fun or so many people wouldn't do it.

But we love to go out to the Peninsula and park along the bay side and, with the heater going full blast, watch these people enjoying themselves.—*Cliff Taylor*



Tackle Tips

ICE fishermen who have, in the past, used odd pieces of tackle, particularly old casting rods, to jig for pan fish through the ice will find a well designed jig rod a marvelous improvement to this winter sport.

This stick is being used by increasing numbers of ice-men in the north central region of Pennsylvania. The original rod design was doubtlessly inspired by a veteran of this winter game, for the stick incorporates features that definitely assist the ice-artist in pulling stacks of perch and pan fish from the frigid water.

The unique rod is simply a hard wood stick, measuring about 24 inches in length, with an enlarged block midway above the handle for storing excess line. The handle is drilled with a half-inch hole, to a depth of three or four inches, for storing extra hooks, split shot, ice flies and spoon lures. The storage compartment is fitted with a cork stopper. The opposite end has a single eye-screw, of moderate size, which serves as a line guide. These fanciful fixtures are all functional in design. Ten minutes with a power jig saw is sufficient to produce a custom built model.

How is this winter rod used? For the benefit of newcomers to this winter sport, the jig rod assists in the manipulation of a line through a jagged hole punched through the frozen plate-glass window. A sufficient length of line (usually casting rod line) to reach down to the pond bottom is unwrapped from the block. The stick is then "jigged" in an up and downward rhythm, which in turn keeps the bait, trout wet fly or spoon in motion, attracts passing pansters. When bluegills, perch and smelt arrive on location, a jig rod aids the angler in heaving fish top side.

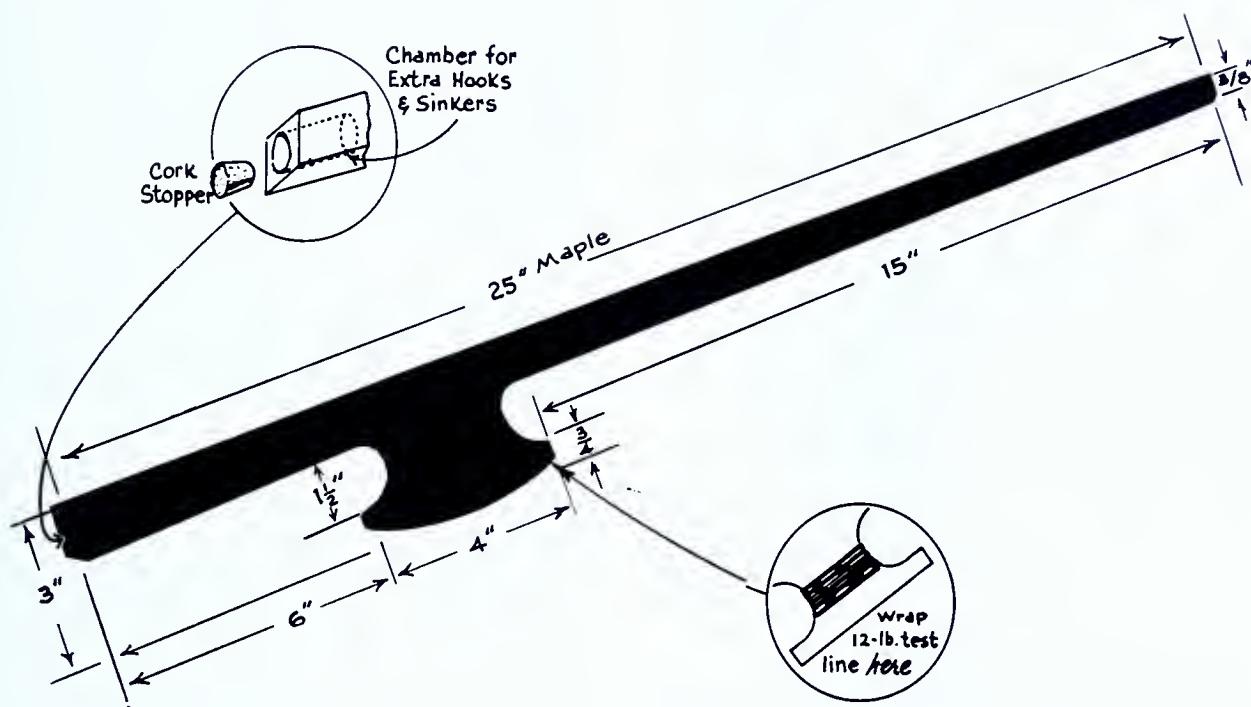
Not every lake cove will produce pan fish during the summer months, and not every ice-hole will produce nice catches during the winter months. The angler must stage an intensive search for the roving schools of fish. Most ice-artists therefore select coves that have an abundance of weed beds and debris scattered about on the lake bottom. Here, a series of holes is cut through the ice. The snow piscator tries first one window for a few minutes. If found unproductive, he moves to another ice hole and so on until a school is located. And one hole that proves unprofitable at the moment may suddenly become a real "hot spot" an hour later, for the roving pansters are attracted to the little shaft of sunlight that seeps down through the window.

With the assistance of this short rod, the tiny lure is jigged about in the shaft of light. There's plenty of action, with tense moments, to fill an otherwise drab winter day.

Join the winter fishing league. Spend an evening whittling a jig rod. Equip it with line and lure. Then dress appropriately for the cold weather and enjoy this fine winter ice fishing game.

Jig Stick for Ice Artists

By Don Shiner



DIMENSIONS-DESIGN for ice jigging rod.



BUNDLED UP . . . ice fishing is great fun for the entire family.

JIG ROD ARTIST'S reward is often a delicious catch of pan fish. . . .



Notes . . .

from the Streams

District Warden Raymond Hoover (Crawford) reported a 30-pound, 47½-inch musky landed by Ed Schultz, of Springdale, Pa., during the waning fall fishing season.

#

Muskies measuring 32, 34, 36 and 48 inches were reported taken from Sandy Lake during November according to **District Warden Richard Abplanalp** (Mercer-Lawrence).

#

Fred Kohler, of Waterford, Pa., a muskellunge specialist at Lake LeBoeuf, is getting the well known "brush off" from a big musky estimated at 40 pounds or better. This little ole fish takes great delight in rolling close to Kohler's boat. Kohler said this is probably the fish he's tangled with many times but failed to land and one of these days, when Mr. Muskie has an off day, he'll get the hook.—**District Warden Norman E. Ely** (Erie).

#

District Warden Norman L. Blum (Forest-Clarion) figures the walleye fishing should be picking up in the Allegheny River and even better than last season. A large number of sub-legal walleye were observed, caught, returned.

#

Special Fish Warden William J. Kratzer, Port Treverton, reported that a lucky Freeburg (Snyder County) fisherman landed two fine smallmouth bass in the Susquehanna River near Port Treverton near season's close. The bass tipped the scales at an even 8 pounds.



BIG MUSKY battled and landed by Edward Trzeciak, New Kensington, Pa., on September 29, 1961, in the Allegheny River at Port Allegheny. The fish weighed 28 pounds, was 45¼ inches long. Trzeciak told **District Warden Wilbur Williams** (McKean County) another musky as large as the one he caught followed the hooked fish during the battle.

District Warden William E. McInay (Bedford) reports the eel population in the vicinity of Bedford has increased. E. C. Landis, of Bedford, caught a 29-incher last November 11.

#

District Fish Warden Stephen A. Shabbick said the Fish Commission planted a consignment of brown bullheads and channel catfish in Osterhout Pond near LaGrange; Nigger Pond and Chamberlain Pond, in Susquehanna County. A consignment also was made in Cummings Pond, Luzerne County. These fish ranged from 10 to 18 inches. The Commission, according to Shabbick, has been planting channel catfish in these ponds a number of years with below average creel returns. Shabbick figured it was possible anglers were not using the right bait although a few had been taken on cut bait (pieces of shiner or shrimp), night crawlers and limburger cheese. The latter bait may be obnoxious to the fisherman but a catty thinks it wonderful.

#

District Warden Richard Owens (Huntingdon-Mifflin) declares the boating fraternity on Raystown Dam die real hard. He noticed pleasure boaters enjoying cruises on the dam through the cold November.

#

District Warden Kenneth Aley (Potter) is convinced, in order to be an expert turkey hunter, it is also necessary to take a course in "falconry." While patrolling West Branch Township he noticed a large area torn up in snow and leaves. Investigating, Aley walked upon a golden eagle that had killed a large hen turkey, and was feeding on the carcass. The eagle, reluctant to leave his dinner, finally flew a short distance, landed in a tree. Next time he took off he flew more slowly, so full of turkey dinner he had a tough time carrying all that load. Next day a hunter reported seeing the bird in the same area, perhaps the same. Golden eagles are rare in this area, only the second Aley has observed in the wild.

#

District Warden Leland E. Cloos (Tioga) enjoyed talking about Fish Commission activities, Fish Warden's duties to students of Cowanesque Valley Junior-Senior High School on "Career and Natural Science Day" held recently at Westfield, Pa.

#

While patrolling at Hartley Lake in Susquehanna County on November 6, 1961, I saw 30 whistling swans on the lake. It was a beautiful sight to see these magnificent white birds and I have since regretted I did not have a movie camera along at the time.—**District Warden Walter G. Lazusky** (Lackawanna County).

#

District Warden Kenneth Aley (Potter) declares you can say all you want about the Great Blue Heron but he finds him destructive to fish life. While checking spawning habits of stocked two-year-old brook trout recently, he came upon a heron feeding on the trout. This bird is usually very wild, takes off at the least disturbance. The big bird was so full of fish he couldn't take off, doing more running than flying and then for only a short distance. Warden Aley finally drove him away, hasn't seen him guzzling trout since.

#

Maintenance men working on the barn at Lake Somerset saw a deer swimming across the lake about 1,000 feet above the dam. It was making good progress, reached the opposite shore, then took off for the mountains as if jet propelled. Miss Shirley Smith, office secretary, insists she has seen a black panther in the area. Nothing was seen chasing the hurried deer but it could have been an animal of some kind. Black panther?—**Regional Warden Supervisor Minter C. Jones**.

Sportsmen's clubs interested in stream improvement work should visit Farnsworth Run in Warren County, according to **District Warden Kenneth G. Corey** (Warren County). The work on Farnsworth Run is done by the use of wire baskets filled with stone placed at different angles, some to speed up the water and others to slow it down. Some baskets holding tons of rock, enclosed with wire, are expected to be highly resistant to washout.

#

From reports of **District Warden Clifton E. Iman** (Butler and Beaver) more sportsmen combined their fishing and hunting the past season. He noted 22 late-season outdoorsmen fishing Glade Run Lake during the early part of the hunting season. **District Warden William E. McIlroy** (Bedford) reported over 50 fishermen on Koon and Gordon Lakes on October 28.

#

District Warden Richard Owens (Huntingdon-Mifflin) got the story from an ardent Huntingdon angler, "Red" McCarty. Seems Red caught four nice bass in the Juniata River, put them in a live net. Placing No. 5 in the net he found no fish, only a big hole. Far from discouraged he repaired the net, caught replacements.

#

Though the weather was rough during the State Fishing Tournament held October 14 and 15 at Tidioute, it was nevertheless enjoyed by those present. Main attraction this year was the always interesting Fish Commission display.—**District Warden Norman L. Blum** (Forest and Clarion).

AHOY! CLUB SECRETARIES, CORRESPONDENTS, NEWS BULLETIN EDITORS! The ANGLER wants news of the activities of your club, particularly concerning stream improvement, cooperative hatchery, conservation projects and relative activities. Photographs similar to those shown on pages 6 through 9 of the December, 1961, issue PENNSYLVANIA ANGLER. Also photos or snaps of interest. We would appreciate being placed on your mailing list for club bulletins as they appear. Address: PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.



RECENT ARRIVALS in the Youghiogheny River. Over 2,000 catfish from the Delaware via Pennsylvania Fish Commission were stocked in 8-mile stretch of the river. W. J. Burnsworth, recording secretary, Connellsville Worm Fishing Club, stocks first fish.

Hill Side Club Stocks 4,000 Brook Trout in Public Waters

Thirty-five members of the Hill Side Rod and Gun Club, Blossburg, Pa., recently released about 4,000 brook trout from 5 to 7 inches in eight small tributaries to Tioga River and Roaring Branch Creek; in public waters in vicinity of Blossburg.

These trout were furnished as fingerlings, 10,000 total, by the Pennsylvania Fish Commission to the Club on June 19, 1961; 6,000 held for spring planting. The club did a lot of hard work with these fish in their rearing ponds located on club property on road to Morris Run out of Blossburg. The ponds attract many visitors, always welcomed to the fine project.

Other clubs interested in future trout rearing programs should write the Pennsylvania Fish Commission, Harrisburg, Pa.

Prize (?) Hellbender Landed at Millersburg

Donald E. Wingard and Paul K. Cooper, both of Millersburg, Pa., thought they hooked a big bass while fishing last season in the Susquehanna. 'Twasn't. Was a brute of a hellbender, 30 inches long. The Fish Commission's book (single copies free for the asking) "Reptiles and Amphibians" notes maximum length of these salamanders at 29 inches. We therefore nominate Messrs. Wingard and Cooper for the top "Water Dog Award of the Year." Any seconds?

Connellsville Club Stocks Catfish in Youghiogheny

A shipment of over 2,000 blue and channel catfish from the Delaware River via the Fish Commission found a good home in the Youghiogheny River recently, stocked by members of the Connellsville Worm Fishing Club. The Commission truck was met by District Warden James Banning (Fayette) and W. J. Burnsworth, John Ratti, Melvin Gator, Ernest Bowers, Sr., Wally Cable, Ernest Bowers, Jr.

Distribution was made at four points along the river covering an eight-mile stretch. With the local new sewage treatment plant now in operation the Youghiogheny, in the future, may once again become a fine fishing area.

The Connellsville Worm Fishing Club has a membership of over 200. Officers are: Arthur Wilkey, president; George Yothers, vice president; Ernest Bowers, Sr., secretary, and W. J. Burnsworth, recording secretary.

Boating

Outdoor Motors in Rescue Work

Ever-increasing numbers of outboard motors are used throughout the world for boats of the coast guard, air and sea rescue, beach lifeguards, flood assistance teams, and other agencies and groups requiring dependable power craft of shallow draft and reasonable speed.

Boats at lifeguard stations along the entire Belgian coast from Ostend to The Netherlands border are now equipped with outboard engines as standard gear. Successful modification was accomplished on the traditional pointed-stern boats with bolted strap iron and a transom extension to convert the craft for outboard motor use. Originally designed for hand rowing, Belgian lifeguard boats can now be rapidly propelled to scenes of disaster in a fraction of the time formerly required.

In France, lifeguards of the Republican Guard Troops have been furnished a new type of inflated rubber boat at stations along the Seine River in the vicinity of Paris. Also powered by outboard engines, the inflatable craft are reported to be fast and dependable in rescue operations. Constructed of individual compartments, the boats are said to be virtually unsinkable.

More and more merchant ships are coming to be equipped with at least one outboard-powered inflatable dinghy, following lengthy studies which indicate that such craft possess outstanding features as emergency boats.

Indications are that rescue services on all continents will continue to utilize increased numbers of outboard motors for their human activities. Such features as the tilting motor which allows quick passage through shallow water or through surf, the shock-absorbing engineering of the engine which enables it to continue running after hitting underwater obstacles, a favorable power-weight-ratio, and full gear-shift—all point to further adaption of the two-cycle outboard motor for rescue work throughout the world.

How Fast?

To check the speed of your boat, measure a mile course or hit a lake or slow-moving river that has mile markers, then run this course at a constant speed. Note your departure time carefully (to the second) and the time of your arrival at the predetermined points. Compare the elapsed time with the table furnished by Out-Board Boating Club of America:

Elapsed Time Over Measured Mile

	Speed
180 seconds	20 mph
144 seconds	25 mph
120 seconds	30 mph
103 seconds	35 mph
90 seconds	40 mph
80 seconds	45 mph

AIM

One of our principal aims is to promote safe boating; we wonder what technique is best to bring desired results.

As in any profession one attribute stands out from all others, which contributes to success. This is experience. Experience overcomes the inferiority complex which is what makes the novice boatman tear around at full speed or maneuver in a lubberly fashion, disregarding the safety of others. To convince himself and show everyone how salty he is he must be a show-off.

Experience has taught seaman 1. To be cautious. 2. To be observant and 3. To know and respect the rights of others.

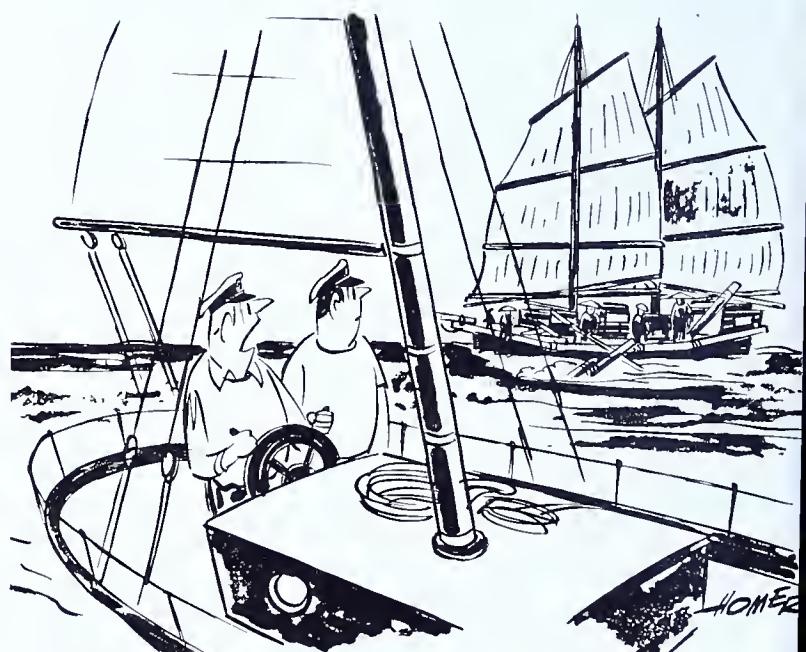
In many cases a considerate and perfectly congenial person whom you enjoy the company of, becomes an entirely different character the instant he gets behind the wheel of a car or takes control of a boat.

This condition and others similar are correctable only by experience.

Coast Guard "Topside"

Wonderful World of Boats

The 52nd National Motor Boat Show January 13-21 will be held at the New York Coliseum. Making its debut under the theme "The Wonderful World of Boats," the show will reflect the latest developments in American boating.



"BETTER CHECK OUR COURSE TO BERMUDA AGAIN..."



HI THERE! . . . To all you outdoor-minded youngsters . . . welcome! This page is yours. It is written by Mr. Myron Shoemaker, former Pennsylvania Fish Warden, nationally known outdoor writer with a world of experience guiding, working with youth. He would like you to write him, telling of your own experiences and good times outdoors. Ask questions about things you find hard to understand. He will help you unravel the endless riddles, puzzles and strange mysteries of forest, field and stream. Write Mr. Shoemaker on post card or letter won't you? While he may not always reply on this page . . . he will personally answer you. Address: Mr. Myron Shoemaker, PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.

Youth Outdoors

Ambassadors of Conservation

By MYRON E. SHOEMAKER

Just what is there about this fishing business that compels human beings to endure the forces of nature's elements for the sake of catching a fish? Why do intelligent human beings absorb drenching rains, wade in cold water, sit on wet ground or the hard board of a boat seat, broil in the sun, freeze in the cold, expose their faces to wintry winds, endure the invasion of endless swarms of punkies that want to feast upon neck, face and ears until the blood comes?

It must be for something besides money. No normal human being would endure such conditions when working; not for all the gold in the world.

The answer is as simple as it is solid: It's fun to fish. Let's keep it that way.

It's exciting, rewarding and refreshing.

The contest between a fighting fish and fisherman has few equals in the realm of sports for creating thrills. For each has an equal chance of becoming the winner, with the fish using every trick at its command to escape, and the fisherman using all the skill, experience and patience at his command to capture it.

Have you ever experienced the thrills of a contest between a fighting fish and fisherman? You haven't. Well, son, come along with your old "fishin' friend." We'll introduce you to a game where you can have a barrel of fun. You'll find out that no fisherman ever hooked a fighting fish without his heart leaping with it, whether it involves an adult with the most expensive tackle money can buy or a boy with a two-dollar outfit.

Got your fish pole and bait? Got a pal you want to take along? Better get one. You'll have more fun with a pal. What about Joe and Chuck? How about inviting Betsy and Mary Jane? This is a game every boy and girl can enjoy.

What they hittin' on?

Never mind right now what they are hittin' on. Let's learn a few important things about this fishin' business.

How about resting under that willow for a few moments?

What they hittin' on? That's just what most fishermen want to know. For generations those words have been exchanged by fishermen, both young and old, across the waters all over the continental United States. These words have echoed from the

mountains of California to the coast of Maine. But no answer has yet come back to tell the fisherman just what lure will guarantee the catching of fish at any given time or place. Just what, when and where fish will bite is something you will have to find out for yourself, and from your fishin' friends.

Lures that prove successful for one fisherman are useless for another fisherman. But if you want to become a successful fisherman there is one basic rule you must learn to understand: That is the habit and habitat of fish.

The fisherman who learns where fish live under normal or abnormal conditions, what they feed upon, and when they feed can become a successful fisherman. Today, however, let's try to find out how much fun it is to fish. The knowledge, skill, experience, patience and ability will develop. It won't take too long. You'll be grown boys and girls before you know it. But if you learn now how to have fun when fishing, you'll know how to have it throughout life.

Fishing is God's greatest gift to mankind in the realm of outdoor sports. No other outdoor sport can match it for combined elements of fun, thrills and relaxation.

If you have discovered by this time that you want to be a real fisherman, that you'd like to join the fraternity of fishermen, we'll let you in on a few secrets concerning membership in this great fraternity.

Things you may not know.

Some fish feed at night. Some during the day. Some feed both day and night, all depending on the conditions of the weather and the water.

The smallmouth black bass feeds either day or night. Look for this crafty fish in the swift water during the summer months; in the deeper water during the fall. The dark shore line at night is where you'll find this sly fellow feeding. But you better keep quiet when approaching his feeding ground. Better not use a flashlight to find your way, especially if you flash the light upon the water.

This fish is smarter than you think. He will either swim away when he hears you approaching, or leap from the water and never return to examine your lure.

If you must make noise when approaching your favorite fishing ground, especially at night, do so before darkness falls. This is especially true if you are going to walk along the shore. If you are going to fish from a boat in a river, better let the boat float down stream a short distance before you start fishing.

Never underestimate the craftiness of this fish. He is sometimes smarter than you. But when you learn about his habits and habitat you can have some fun.

We'll do our best each month to fill you in on the many things to make you a better fisherman.

It's fun to fish. Let's keep it that way.

The Feminine View

By MARY ELLEN JACKSON

Up until my wedding day I had held to the belief that a fisherman was a fagged businessman badly in need of rest and relaxation, who had taken to the woods and streams to get his thinking gear back into shape. But the Man I Married, soon changed all of that! I was to learn that no other thrill on earth can compare to that of rising long before the bravest rooster, and easing through the mist and magic of morning toward the designing brook, where worldly and scornful trout played a darn good game of Hide-and-seek with your dreams of a worthy catch to crow about later on.

I didn't take too readily to the perpetual eye squint, the aching back, and the frayed frustration of always going home without the bacon, or the trout. But it was, and still is, a source of wonderment to me, a mere woman, at the way men go all out for this fooling around with fish. A husband dozing over his coffee cup an hour earlier, will galvanize into instant action at the accidental mention of *FISH!* And he will dance back to boyhood, while engaged in collecting night crawlers in the moonlight, for his next day's catch.

I have followed him faithfully and often fretfully, up hill and down-on-our luck, into cool little dells, and have tread those dear old covered bridges, with nostalgia nibbling at my consciousness, into wild and wonderful places where the trout have given us the slip.

"Why don't you take a book along and read?" a thoughtful friend suggests. Nice of her to say that, but not on your life! Because, my mate, with a certain inflection of speech, can imply that I should love it as much as he does. I must watch without a twinge of jealousy or chagrin, his glorious response to all of that load of lure under water. And I am cautioned not to talk either. I might disturb the equilibrium of the staring sirens hiding behind cool stones!

What matter if I may have at last collared an inspiration I've been chasing around for weeks. And without benefit of bait. If the brilliant idea capriciously decides to come closer at that moment, I'm really sunk. Because my memory simply cannot be banked on. So I mention the best part hoping his better intelligence will keep it on ice for me until we get home. I might as well have throttled it in the first place. He is caught himself, in a kind of mesmeric haze. I look closer at the pond, thinking that a school of mermaids might have slipped in. I must keep beaming at the brook, come hell or high water.

Poets may not be born but true fishermen really are. And my husband is one of them. Of that I'm reasonably sure. He doesn't go in for fancy gear. He merely dons his oldest coat, his battered hat, brightened by this year's cute red check tag, and carefully trundles his oldest pipe along.

In the dead of winter, in the dreariest part of cold and storm, I enjoy drawing this picture up from my subconscious . . . my husband, with his eyes glued to the brook, the fish at least nibbling encouragingly, his pipe going full blast. Team that up with the meadow lark singing to High Heaven, and the fuchsia dawn in the distance, or the dusk right around the bend in the river, then you have yourself a sight. I have left myself clean out of the picture, lost in the background, bone tired, as hungry as a cocker spaniel, and not a single bite.

As the dark settles down damp on our shoulders, and the fish get ready for bed, and we start folding up our rods, here are moments to grow strong in. The world, with its war obsessions, seems very far removed. We may not have any fish this trip, but we are taking home something . . . something we can sleep on, and remember always even while it has become water under the bridge.



Recipes

High Dutch settlers from the German Rhineland were divided into three groups—the Plain People, the Church People, and the Moravians.

The first migration of the Plain People to the Province of Pennsylvania occurred in 1683, resulting in the settlement of Germantown and small colonies in the southern area.

A group of 3,000 Church People (Reformed and Lutheran) settled largely in Berks County.

The Moravians, arriving from 1740 on, had as their chief centers Bethlehem, Nazareth, and Lititz.

Although each specific group formed a cultural parallel of its own, they all had the same taste in fish. This was a matter of necessity for the small streams, rivers, and ponds contained limited quantities of fish. Consequently, these settlers depended largely upon shell and salt-water fish.

LITTLE PIGS IN BLANKETS

Wrap thin slices of bacon around large oysters and fasten ends together with a toothpick. Place under hot flame and broil, turning frequently until crisp and brown. Serve immediately.

SNAPPER SOUP

3½ pounds veal knuckle	¼ teaspoon thyme
1 cup chicken fat	½ teaspoon marjoram
4 quarts beef broth	1 bay leaf
2 cups sherry	3 whole cloves
1 cup flour	3 slices lemon
2 carrots, diced	1 hard-boiled egg, chopped
3 onions, chopped fine	2 cups strained tomatoes
2 stalks celery, chopped	salt, pepper, tabasco to taste
	snapper turtle meat cut in small pieces

Have the knuckle broken into two-inch pieces. Place in roasting pan and add chicken fat, onions, celery, carrots, thyme, marjoram, cloves, bay leaf, salt, and pepper. Bake in a hot oven until brown (400 deg. Fahr.).

Remove from the oven and add flour, mixing well. Cook 30 minutes longer. Pour browned mixture into a large kettle, add the broth with the tomatoes, and cook slowly for 3½ hours. Combine the snapper meat with one cup of sherry, some salt, tabasco, lemon slices, and simmer for 10 minutes. Strain the soup and combine the two mixtures. Add the chopped egg and the balance of the sherry. Serve immediately.

Fly Tying

By BILL COCHRAN

Woolly Worms Are Simple to Make

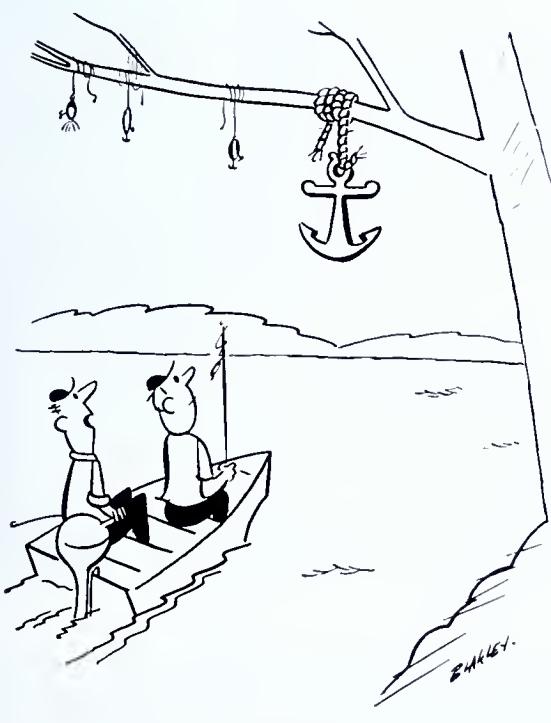
First step is to wrap the hook with tying thread, then tie in the tail, if your pattern calls for one. The body material and hackle (palmer) are tied in as the second step. Both are placed just in front of the tail. The tip end of the hackle feather should be tied to the hook and its dull side should face forward. This will make the hackle flare slightly toward the eye. In the final step the body material is wound up to the eye, and tied. Following this the hackle is wound up to the eye, then the head is finished, completing the woolly worm.

The black and the yellow woolly worms are the two most important patterns and these are usually tied on a special long shank hook. However, there are several variations that should be considered. Woolly worms may be tied in a great variety of shapes, sizes, and colors. The hackle, which is tied in a palmer fashion (worked in the full length of the body from the bend of the hook up to its eye), may be tied long and sparse, or short and thick. In fact, sometimes the woolly worm is more effective when tied without a hackle at all—just a wrapping of chenille and maybe a tinsel ribbing is used.

The size of the hook may also be varied. Instead of the usual long shanked woolly worm hook, a regular shank hook may be used. It makes a good "buggy" type dressing that trout go for and it is one of the best dressings for bluegills.

You can also get variations in color patterns. A popular western dressing calls for a black body with an orange band in the center. Other interesting effects may be obtained from the use of badger and grizzly hackles. Also you can dress up a woolly worm by adding a red tail, a peacock sword tail, or a combination of both.

I by no means am advising you to discard all your old fly patterns and carry woolly worms only. There will be days when fish won't look at them, or anything else, but I do suggest you add several woolly worms to your fly box and use them. You'll be glad you did.



"Somebody hadda bad day!"



CONSERVATIONISTS MEET AT LEWISTOWN. Planning annual dinner meeting of Mifflin County Soil Conservation Society recently were: (left-right) Grant Pecht, director; Clyde Krapps, secretary; Gerald Bullock, president, SCS; Robert Lewis, Pennsylvania Department of Forests and Waters; Richard Owens, district fish warden, Pennsylvania Fish Commission; David Bartley, SCS technician; June Fowler, of Mifflin office; Reed Goss, director, SCS, and Claire DeLong, Mifflin County farm agent. Speaker at the dinner was Maurice K. Goddard, Secretary, Pennsylvania Department of Forests and Waters.

OUTDOOR BOOKS . . .

"*Wilderness Cookery*," by Bradford Angier (The Stackpole Company, Harrisburg, Pa., 248 pp. and index \$3.95). A relief from unwholesome, poorly cooked grub so common to wilderness as well as close-to-home camping.

If there's anything most people like it's good food no matter if they're camping on Old Baldy or on the village green. Mr. Angier, judging from his directions and appealing recipes alone, would get my vote because I cannot resist drooling when it comes to juicy, excellently cooked food. The book is an appropriate follow-up to the writer's "How to Go Live in the Woods on \$10 per Week" because a large percentage of the ten bucks goes for necessary victuals. Though I cannot truly appreciate the techniques of wilderness cooking simply because I seldom get into a real wilderness, nonetheless, the preparation, the handling, the eye to economy intrigued me. The author, for example, makes dough and pies the old-fashioned way. In my trailer I have packaged pie sticks stashed away. I can knead out and have a real goody chocolate or lemon pie crust in production before Mr. Angier can get to the rolling.

Game cookery discussions herein are expert, well done. The section devoted to "free eating" is the best I've ever seen, a much needed text for outdoor living folks. The sketches of native plants that are edible, the preparation of them, stirred memories of an old high school course in botany. I'd recommend many of his breads, biscuits, cookies and cakes but anyone tackling the homemade bread department should get into the dough at home first. Making bread is far from a cinch, a patient, painstaking, back-breaking, finger-numbing job if you want good bread. Hot bread on the trail . . . sheer solid ambrosia! To add to the book the author throws in food measurements, a table of substitutions where one ingredient can be substituted for another, a handy device almost anywhere, trail or traffic. There's even a calorie counter to the rear of the volume and this is where I ran out of print.

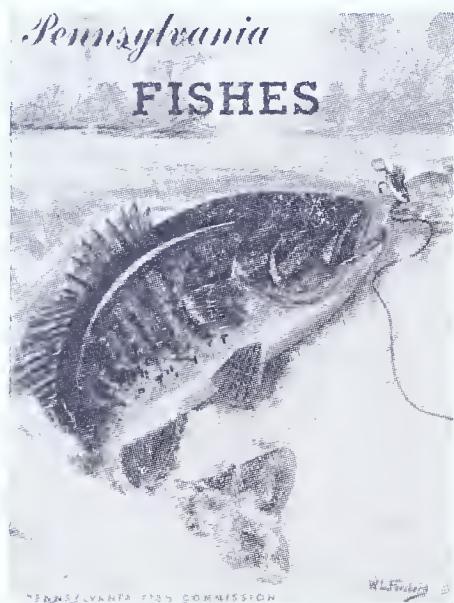
Name Your Own Deal!

SEND

25c per copy

(plus 4% Pa. Sales
tax)

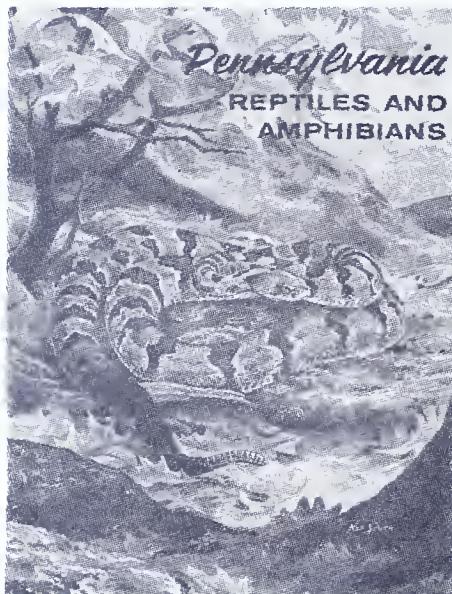
**PENNSYLVANIA
FISHES**



We'll include in the same mailing

A FREE
copy of
the
colorful
interesting

**REPTILES AND
AMPHIBIANS OF
PENNSYLVANIA**



CLIP HERE

Enclosed please find \$ Check; M. O.; Cash for:
copy(ies) of **PENNSYLVANIA FISHES** @ \$.25 per copy.

Forward to: (please print or type)

Name _____

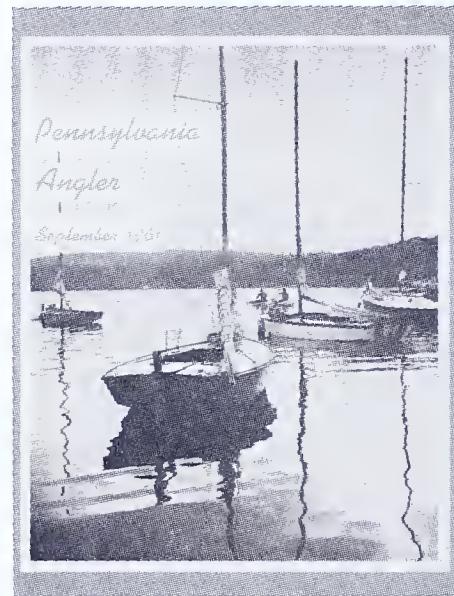
Address _____

Town _____

Zone _____ State _____

Make check or money order payable to **PENNSYLVANIA FISH COMMISSION** Harrisburg, Pennsylvania

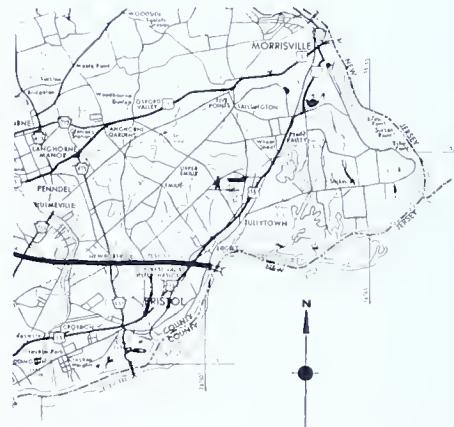
Cash sent at your own risk, stamps not acceptable



Send \$2 for
a year's
subscription
to

**PENNSYLVANIA
ANGLER**

We will send via return mail



PENNSYLVANIA FISH COMMISSION
WATERS-HIGHWAY MAP
COUNTIES OF
BUCKS - MONTGOMERY

Prepared in cooperation with the
PENNSYLVANIA DEPARTMENT OF HIGHWAYS
COMMONWEALTH OF PENNSYLVANIA

YOUR CHOICE
FREE
of any
Pennsylvania
County
Waters-Highway
Fishing
MAP

CLIP HERE

Enclosed please find \$ Check; M. O.; Cash for:
year(s) subscription to the **ANGLER** @ \$2 per year;
years—\$5.

Forward to: (please print or type)

Name _____

Address _____

Town _____ Zone _____ State _____

Indicate County Choice
Free Fishing Map Here





Pennsylvania Angler

February, 1962

P38, 3,
116



Project 70

GOVERNOR DAVID L. LAWRENCE presented to the General Assembly on January 16, 1962, a bold new program designed primarily to protect and develop the outdoor recreational facilities of the Commonwealth.

The plan, to be known as "Project 70," was developed by the State Planning Board under the direction of the Honorable Francis A. Pitkin, its executive director. Dr. Maurice Goddard, Secretary of the Department of Forests and Waters, played a major part in the development of the plan, which calls for the allocation of forty million dollars to the Department of Forests and Waters.

"We have a plan that looks to the future. It can preserve for our children and our children's children the precious beauty of Pennsylvania. It will help guarantee them a community rich in promise, rich in opportunity, rich in the livability of its communities and its landscape," said Governor Lawrence in his presentation.

The Pennsylvania Fish Commission unanimously passed a resolution giving full approval to the project during its January 22 meeting.

The core of the PROJECT 70 proposal is the passage of a bond issue of 70 million dollars for the acquisition now of essential lands for the development and preservation of recreational areas throughout the Commonwealth before our expanding populations absorb these acres in expanding urbanization. Once converted to industrial and residential uses, they are gone forever. This proposal would accelerate the purchase and setting aside of essential recreational spots while they are available and thus advance state-wide planning before suitable and essential streams, forests and suitable park lands are converted to other uses.

The proposal of the State Planning Board would ring Pennsylvania's populated areas with "green belts" of parks and open space by the year 1970, to be financed through the 70 million dollar bond issue. Included would be important fish and wildlife lands and water areas. The plan would create a new American vacation land in nonurban counties by diversifying recreation on existing state lands.

Through this proposal, Pennsylvania joins with other

progressive states which are looking forward to the future by recognizing the importance of outdoor recreation in their total economy.

New York recently overwhelmingly adopted a 75 million dollar bond issue to make possible the acquisition and preservation for public use of remaining areas needed for various types of recreation.

New Jersey likewise endorsed a 60 million dollar "green acres" proposal with the purpose of conserving needed lands while they are still available. Wisconsin and California have also embarked on open space programs.

PENNSYLVANIA'S PROJECT 70 proposal tentatively would allocate 40 million dollars to the Dept. of Forests and Waters for the purchase of open space and park lands on the metropolitan periphery of urbanizing areas. Such acquisition would be for recreation, the conservation of water, scenic areas and similar natural environment. Ten million dollars would be made available for the purchase of important fish and wildlife lands and water areas by the Fish and Game Commissions. These would include boating access sites on rivers and streams with priority assigned to those areas which are threatened with encroachment from nearby commercial and residential developments.

The remaining 20 million dollars would be available for matching grants to local governing bodies for their open space and park programs.

Acquisitions by local governments should be such that it would preserve stream valleys, woodlands, parks and other natural areas in urban sections, especially those lying in the path of expanding population growths.

Since the Fish Commission is charged with the responsibility of prescribing fish management measures on all Forests and Parks lakes as well as to other public waters within the State and since the program envisioned in PROJECT 70 would vastly enhance the fishing and other recreational values within the Commonwealth, we believe that this far-sighted and exciting program of the State Planning Board merits the whole-hearted support of all fishermen of the Commonwealth.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief

Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief

EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief

Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913
DEWAYNE CAMPBELL Fishery Manager
451 Cannell Dr., Somerset, Pa. Phone: 5837

NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President Hawley

MAYNARD BOGART, Vice President Danville

JOSEPH M. CRITCHFIELD Confluence

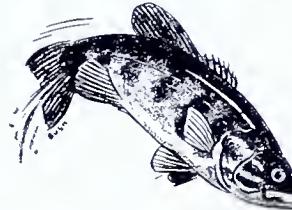
WALLACE C. DEAN Meadville

JOHN W. GRENOBLE Carlisle

ALBERT R. HINKLE, JR. Clearfield

R. STANLEY SMITH Waynesburg

RAYMOND M. WILLIAMS East Bangor



FEBRUARY, 1962

VOL. 31, NO. 2

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 A COOPERATIVE FEDERAL-STATE TROUT STOCKING PROGRAM FOR PENNSYLVANIA—Gordon L. Trembley, Chief Aquatic Biologist, Pennsylvania Fish Commission
- 5 SUMMARY OF PENNSYLVANIA FISH COMMISSION MEETING OF JANUARY 22, 1962
- 6 PENNSYLVANIA FISH COMMISSION BUDGET FOR 1962-1963—Albert M. Day, Executive Director
- 9 THE STURGEON SURGEON—John E. Guilday
- 10 THE AGE AND GROWTH OF THE CHAIN PICKEREL IN PENNSYLVANIA—Keen Buss and Jack Miller, Fishery Biologists, Pennsylvania Fish Commission Benner Spring Research Station
- 12 FIGURINES IN ICE ALONG A WINTER TROUT STREAM—photo story by Don Shiner
- 14 TACKLE TIPS—Don Shiner
- 16 BOATING
- 18 NOTES FROM THE STREAMS
- 20 ON THE NATURE TRAIL
- 20 THE FEMININE VIEW—Bettye Breeser
- 21 TYING FLIES with Stuart Duffield
- 22 EDITOR'S ANGLE
- 24 YOUTH OUTDOORS—Myron Shoemaker

Cover photo—Ice Fishing at Hankins Pond

Back Cover—Ice Cascades below Prompton Dam near Seelyville

Photos by Johnny Nicklas—Chief Photographer, Pennsylvania Fish Commission

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa.

NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

A Cooperative Federal-State

TROUT STOCKING PROGRAM

for Pennsylvania

By GORDON L. TREMBLEY

Chief Aquatic Biologist
Pennsylvania Fish Commission

FISHERMEN of Pennsylvania will welcome the word that an agreement has been reached by the Pennsylvania Fish Commission and the U. S. Fish and Wildlife Service (Bureau of Sport Fisheries and Wildlife) bringing a cooperative trout stocking program to Pennsylvania in 1962. The agreement is based on field studies and on the results of several conferences held over the past two years attended by officials of both agencies and a representative of the Pennsylvania Federation of Sportsmen's Clubs. Because the new program will cut red tape and duplication of effort, it will save thousands of dollars annually.

Pennsylvania is one of the last northeastern states to enter into such a cooperative agreement with the Fish and Wildlife Service—such plans having been successfully carried out in Maine, New Hampshire, Massachusetts, Vermont, New York and West Virginia, with plans for the remaining northeastern states in the making. Nationwide the cooperative plan has been adopted in a majority of the states.

In this article, which is prepared to acquaint Pennsylvania fishermen with the reasons back of the move and how the plan will operate, the word "Commission" will refer to the state agency and the word "Bureau" to the federal agency.

Until 1961 trout from federal hatcheries were stocked or parceled out by the "application system" which meant that anyone could apply for trout for any water. Although these applications were screened to some extent, this system proved to be quite cumbersome and all too frequently trout were planted in remote areas and even in private waters where the fishing public did not fish or could not easily reach. Early in 1961 the use of the application system to obtain federal trout for stocking was discontinued by the Bureau not only in Pennsylvania but also in the entire northeast region of the United States. The Bureau will still honor applications for trout and other fish species in farm ponds.

Of the trout reared at federal hatcheries for stocking in Pennsylvania, a portion was formerly transferred to the Fish Commission for stocking and the remainder were stocked directly by the Bureau. Although a high

degree of cooperation has always existed between the Commission and the Bureau, it was inevitable, without a coordinated program, that inconsistencies and duplications would arise. Thus it was not unusual to find trucks of both agencies stocking trout in the same county and even in the same stream on the same day. Because many more applications came in from some counties than others, emphasis in federal stocking was naturally on these counties. Past records show that as few as five or six Pennsylvania counties got the "lion's share" of fish stocked by the Bureau. Another reason for abandoning the application system was that the number of applications approved annually became so great that the Bureau was greatly restricted in the number of trout which could be stocked in a stream. Sometimes this amounted to as few as 25 or 30 trout.

So much for the past. The new cooperative program has three main objectives: (1) To eliminate duplication of effort and truck mileage in stocking trout and thus save money for both agencies; (2) to provide an equitable method of distribution so that all approved trout waters will get a fair share of the available trout and (3) to insure, through research and experiments, the maximum utilization of hatchery trout.

To attain the first objective, it was necessary to divide the waters of the state approved for trout stocking into two groups—one to be stocked only by the Bureau and the other to be stocked only by the state. This arrangement in itself would represent a savings since both agencies would no longer be stocking the same waters. The division was made on the basis of ownership, that is, whether streams were publicly or privately owned or controlled. Since the Bureau was already stocking numerous public waters, it was considered consistent that their primary stocking emphasis should continue to be on public waters in selected counties. Public waters as designated here are those owned or controlled by such agencies as the Pennsylvania Department of Forests and Waters, Pennsylvania Game Commission, Pennsylvania Fish Commission and certain municipally-owned waters. Private waters are those open to public fishing but owned by one or more landowners.

In 1962 the Bureau will stock trout in public waters in 23 counties under the cooperative program (see accompanying map). Fish for these plantings will come from three federal hatcheries which supply trout for Pennsylvania and neighboring states. These are the Lamar Hatchery in Pennsylvania and the Leetown and Bowden Hatcheries in West Virginia.

The Commission will stock the approved waters not serviced by the Bureau. These include (1) approved private waters in all counties and (2) approved public waters in the counties not stocked by the Bureau. The entire output of the state's hatcheries located at Bellefonte, Corry, Huntsdale, Reynoldsdale, Tionesta and Pleasant Mount will be utilized in the cooperative program.

Federal trout will be transported in federal trucks and state trout in state trucks. A plan is now being developed whereby only one agency will stock trout in a county on any one day. This will make it possible for fish wardens to meet all trout shipments and allow interested sportsmen to assist with more plantings.

The second objective deals largely with what waters to stock and how many trout to stock in each. Information on the suitability of waters for trout stocking has been collected over the past several years by Commission biologists. To implement this work, surveys by Bureau biologists on publicly-owned waters were begun in 1961. It was necessary to set up a single standard as to the suitability of waters for trout and, since the Commission already had a workable set of standards, these were adopted by the Bureau. In other words, it was felt that what was good for state trout was good for federal trout.

In the spring and summer of 1961 all streams stocked with trout by the Bureau in 1960 which were not on the Commission's approved trout stocking list were surveyed by Commission wardens and biologists and by a team of investigators hired by the Bureau. A majority of the streams studied did not qualify for future trout stocking because of their very small size and poor accessibility. However, 24 streams did qualify and will be added to the list of approved trout waters and will be stocked annually under the cooperative program.

During the past several years the Fish Commission has set up what is known as basic numbers of trout to stock in each approved water both pre-season and in-season. Since so many trout fishermen fish the opening day and in the early season, the Commission has felt it wise to stock full pre-season basic numbers and this policy was carried over into the cooperative plan. When each approved trout water has received its pre-season stocking, the estimated number of fish left from both agencies for in-season stocking will be pooled. If the total fish available for in-season stocking is not quite sufficient to meet the basic requirements and a reduction is necessary, then this will be done on a percentage basis, treating all streams the same. If either agency has supplemental trout available after all basic numbers have been met, these will be stocked by the Commission in suitable waters.

To retain the numbers stocked in the various ap-



SIGNING AGREEMENT bringing cooperative Federal-State trout stocking program to Pennsylvania this year are: Albert M. Day, Executive Director, Pennsylvania Fish Commission; and John S. Gottschalk, Regional Director, U. S. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife.

proved trout waters in 1962 as near as possible to those stocked in the past, the full basic numbers formerly stocked by the Commission will be augmented by the numbers stocked by the federal government. Thus if a stream had received 5,000 state trout and 500 federal trout in 1960, it will, therefore, receive 5,500 trout under the cooperative agreement in 1962.

One of the most important aspects of a successful trout stocking program is to insure maximum utilization of the hatchery product, that is, the trout. In the long run it isn't the number of trout stocked but the number caught which determines whether such a program is economically wise. In 1961 an experimental stream stocking program was undertaken by the two agencies to determine the returns of trout stocked in seasonal high-pressure streams. This project may be better described as an attempt to put the trout closer to the fishermen and especially in areas where good trout waters are lacking. Lower portions of streams not formerly stocked and located near large urban centers were stocked in this study. This cooperative project will be continued, others dealing with trout utilization will be undertaken and the results will be reported in later issues of the ANGLER.

The Commission's Benner Spring Fish Research Station at Bellefonte will continue to prepare shipping instructions for all trout stocked under the cooperative program. These instructions, which will be sent to the superintendents of the state hatcheries and to the managers of the federal hatcheries, advise how many trout

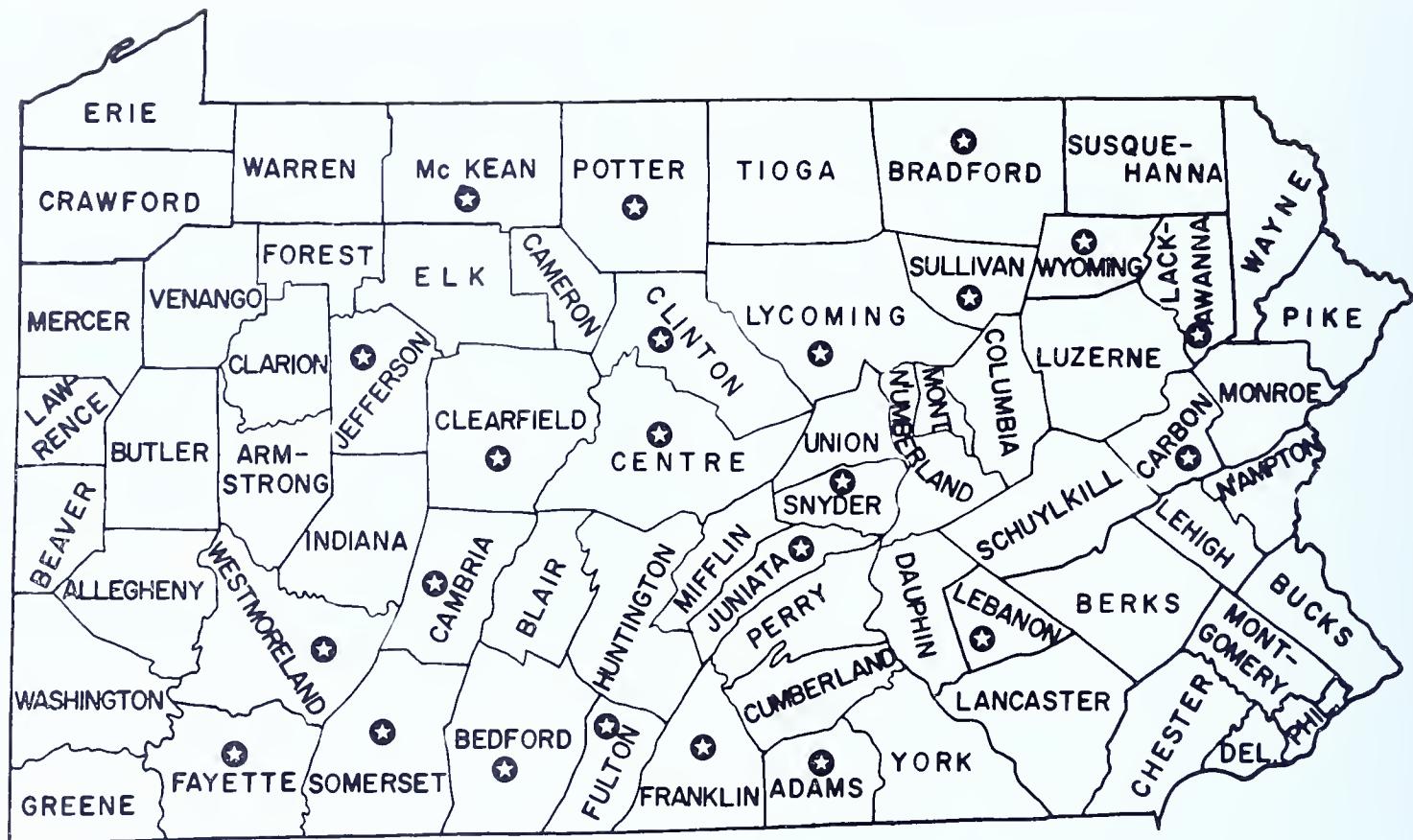


FIGURE 1. COUNTY MAP OF PENNSYLVANIA. Under the cooperative trout stocking program public waters in counties marked with a star will be stocked by federal hatcheries. State hatcheries will stock approved private waters in all counties and public waters in counties not marked with a star.

and which species are to be planted in each approved water. It is left to the hatcheries of each agency to schedule the days when shipments will be made and to notify the fish wardens of all shipments. A plan is now being developed for truck routing which will give the least amount of duplication.

As a separate program the Bureau will continue to stock trout in numerous federal areas including the Allegheny National Forest, U. S. Army Corps of Engineers impoundments and at military and federal prison installations. Although trout plantings in these areas are not included in the cooperative agreement, they are nevertheless an important part in the total trout stocking program in Pennsylvania.

The magnitude of the trout stocking program in Pennsylvania can best be appreciated by citing a few figures. Under the cooperative agreement about 4,450 miles of streams and 2,602 acres of lakes and ponds will be stocked annually with catchable size trout. Added to this are approximately 130 miles of streams and 462 acres of lakes not under the cooperative program which will be stocked by the Bureau as explained in the preceding paragraph. Thus in Pennsylvania about 4,580 miles of streams and 3,064 acres of lakes will be stocked

annually. If one considers that a majority of the streams and many of the lakes are stocked at least twice annually, then the size of the task and the need for co-operation becomes evident.

The Commission and the Bureau will meet annually for review and modification of the agreement to meet changing conditions. This annual meeting will provide opportunity to assess the past year's activities, to further streamline the cooperative program and to apply the results of any joint research projects. The status of trout waters may change from time to time because of physical, biological, chemical or sociological reasons. To keep abreast of these changes requires frequent checking by wardens and biologists. At the annual meeting these changes will be incorporated into the cooperative program for the following year.

In conclusion—this is your program, adopted by the Pennsylvania Fish Commission and the U. S. Fish and Wildlife Service and approved by the Pennsylvania Federation of Sportsmen's Clubs. We believe this new program will bring added fishing recreation to Pennsylvania. We know that you, the Pennsylvania Fisherman, will support it.

Summary of Meeting of Pennsylvania Fish Commission held at Harrisburg, January 22, 1962

The following brief outline of the meeting is being carried in this issue of the PENNSYLVANIA ANGLER so that the readers of the ANGLER and the public will be better informed of the activities of the Fish Commission.

The first order of business following roll call was the reading of the minutes of the October 23, 1961, meeting and their approval.

Executive Director Albert M. Day reported to the Commission. He outlined his statement on the 1962-63 budget of the Commission. This statement was prepared for the members of the Legislative Appropriations Committee and appears in its entirety on pp. 6-8 herein.

The Director described the status of Fish Commission projects authorized in cooperation with the General State Authority program. He advised the Commission that an additional five million dollars will be available for Fish Commission work if the public and the legislators approve "Project 70." (A more complete description of "Project 70" is carried on the editorial page of this issue.)

He reported that less than 400 fishing licenses had been sent in in protest to the Susquehanna River fish kill. He said that arrangements had been made for Mr. Synnestvedt and other representatives of boating groups to meet with the Commission regarding recently announced boating regulations. He also reported that a semi-final report on the Bell-Holmes study of the Susquehanna River was expected within a few days and that the final report would be made within the next few months.

Comptroller Paul J. Sauer presented a budget and financial report.

Chief Aquatic Biologist, Gordon Trembley, reported satisfactory progress in the program calling for co-ordinated stocking of state and federal trout. He outlined plans for the Commission's pre-season trout stocking program.

Superintendent of Hatcheries, Howard Fox, advised the Commission that present estimates indicate a slight increase in the number of trout which will be available for pre-season stocking. He said that all programs for propagation and stocking of warm-water fishes are expected to be continued at a level equal to that of 1961. He said that a truck equipped with glass-sided tanks is ready for use in this year's fish distribution program. He reported that experiments are to be conducted to ascertain the possible savings which may result from the use of larger fish delivery trucks. He also said that the use of wooden delivery tanks will be given a thorough tryout.

Chief Law Enforcement Officer, W. W. Britton, submitted a plan for standardization of computation of annual leave for the fish wardens. The plan was approved by the Commission.

Cyril G. Regan, Chief of Real Estate and Engineering, reported that land acquisition and other details in preparation for the construction of two P. L. 566 impoundments were nearly completed. He said that participation in a similar project on Kaerchers Creek in Berks County would depend upon the availability of

fish funds. He reported that the engineering and real estate staff was cooperating in every way possible to speed the work on General State Authority financed projects.

Russell S. Orr, Chief of Conservation Education and Public Relations, reported that the cost of installing and manning live fish exhibits is excessive unless such exhibits are certain to attract large numbers of people and unless such exhibits can be on display for a minimum of one week. He said that substantial sales of the PENNSYLVANIA ANGLER, "Pennsylvania Fishes," and Waters-Highway Maps have resulted from participation in most shows. He also reported that more than 50 sportsmen's clubs and nearly 200 license issuing agents have requested sales promotion kits to assist in the sale of PENNSYLVANIA ANGLER subscriptions. He said he expects a marked increase in the volume of sales from both of these sources between now and April 15. He said a weekly report on ice fishing conditions is being sent to news media which have requested this service.

The Commission acted to continue the operation of "Fisherman's Paradise" on Spring Creek in Centre County on a "fish for fun" basis. The Commission also listed the fly-fishing only areas for the 1962 season. Under the "fish for fun" regulations, no trout may be killed or had in possession. After the Fisherman's Paradise is opened on this basis on April 14, it will be open year around. The same regulations which govern special fly-fishing areas will apply. Artificial flies and streamers only may be used. All fishing must be done with fly-fishing tackle. Any method of angling whereby the fly or streamer is cast directly from the reel is prohibited. Possession of any bait or lures other than artificial flies and streamers is prohibited.

Special regulations were set for Beaver Dam, Huntingdon County, where a cooperative project is being operated with the Pennsylvania State University.

Waters to be closed as nursery waters were approved. (All such waters will be designated with special posters.)

A delegation representing boaters appeared before the Commission to protest four safety regulations recently announced by the Commission. After hearing the boaters, the Commission advised that their recommendations will be studied and amendments to the regulations to more closely conform to their wishes considered. If changes are made these will be announced prior to April 1, 1962, when the new boating regulations become effective.

Regulations for commercial fishing on Lake Erie were set. With few exceptions, these were identical to the existing regulations.

Fish Commission Budget for 1962-63

By ALBERT M. DAY

Executive Director

I wish to take this opportunity to present to the fishermen of Pennsylvania the fiscal problems of the Fish Commission. This message is identical to the statement presented to the Legislative Appropriation Committee on January 9. The Governor's budget presentation indicates quite a severe cutback in monies for this important arm of the State Government and I would like to explain the reasons therefor.

For the 13-month period of 1961-62 fiscal year, the total appropriations and executive authorizations from the Fish Fund amounted to \$2,898,063. The total appropriations and executive authorizations from the Fish Fund for the 12-month 1962-63 fiscal year are shown as \$2,402,875. Some writers have already misinterpreted these figures largely because of the difference in the length of the fiscal years. It is improper to compare the \$2,898,063 for a 13-month year with the \$2,402,875 for a 12-month year. It is necessary first to convert the 13-month year to an equivalent 12-month year. This conversion will reduce the \$2,898,063 by \$222,927 to a net of \$2,675,136. When comparing this figure with the \$2,402,875 for the 1962-63 fiscal year we discover that there is an actual reduction on a comparable 12-month basis of \$272,261 in operating costs.

In explanation I should point out that the sale of licenses from which we derive our principal source of revenue has been in a constant decline since 1953. Then, Pennsylvania fishing license sales amounted to approximately 758,000. During 1960, our last year of full sales accounting, this figure had dropped to 612,000. We anticipate that when the books are balanced for the calendar year of 1961, there may be a further decline. The present budget figures reflect this trend and indicate an anticipated drop in revenues amounting to 11.2 per cent. This takes into consideration the anticipated loss in revenue from the action of the last legislature in granting free fishing privileges to patrons of fee fishing lakes.

When reviewing the amount of cash receipts for the past fiscal year, we find that for the period June 1, 1961,

to October 31, 1961, we were actually \$342,878 under the anticipated receipts which had been estimated on the history of previous years' sales. Thus, our financial predicament is real.

Perhaps it is of little comfort to compare our situation in Pennsylvania with neighboring states but I should point out that the trend here in Pennsylvania is not peculiar. Other eastern and some midwestern states have shown similar declines in license sales. Another indication of a possible falling off of interest in fishing comes from a statement on November 29, of the official certification of Federal Dingell-Johnson funds which are available to the various State Fish and Game Departments throughout the United States for fiscal year 1962. It shows that during the first quarter of the past year the income to the Dingell-Johnson program from the excise taxes levied on the sales of sport fishing tackle throughout the United States had dropped from \$2,088,000 to \$1,667,000 or a decrease nationwide of 20.2 per cent. Michigan, Wisconsin, West Virginia, Maryland and many other of our neighboring states are undergoing the same fiscal crisis that we are here in Pennsylvania.

The Pennsylvania Fish Commission has not stood idly by while this downward trend in income occurred. During the last session of the Legislature the Commission presented to the appropriate legislative committees three different proposals to raise additional revenue for the better management of this important recreational industry within the Commonwealth. We suggested an increase in license fees, a trout stamp and that the legal age limit for fishing licenses be dropped from 16 to 12 years; we asked for a change in the boating laws to bring in more revenue for improved uses of our public waters.

All we got out of the Legislature was a law giving free fishing licenses to people using fee lakes. This will dip into our already depleted income by an unknown amount, perhaps as much as one or two hundred thousand dollars per year. The Legislature passed an

other bill granting \$1 licenses to all residents over 65 years of age. Fortunately, the Governor vetoed this bill and saved a further deep raid upon our income.

Faced with the failure to secure relief from the Legislature, realizing that license sales have been going steadily downhill for 7 years, knowing that the costs of our every operation have been steadily climbing, the Fish Commission at a meeting in August did the only prudent thing that any responsible agency could do, they started to bring expenditures down to a point somewhere close to revenues. The result was a substantial reduction in all major lines of activity for the fiscal year 1962-63.

With this background, I would like to review with you the methods by which we will reduce all operations to effect the saving required.

EXECUTIVE AND GENERAL ADMINISTRATION

When the 13-month figure of \$200,685 for 1961-62 is reduced to a 12-month figure and compared with \$161,343 for 1962-63, it shows an actual reduction of \$23,905. This saving has been made by a re-assignment of duties in the office of the Director upon the retirement of the chief Administrative Officer and a Purchasing Agent. Also, the abandoning of projected rental of I.B.M. equipment for use of the Miscellaneous License Bureau. A strict program of austerity has been decreed in all objects of expenditure including travel, attendance at meetings, employment of part-time help and items of this nature.

PROPAGATION

When the 13-month figure of \$1,183,100 is transposed to a 12-month basis and compared with the 1962-63 budget figure of \$920,487 we have made an actual reduction of \$171,606. To accomplish this reduction at the nine hatcheries throughout the State, the Commission has eliminated all existing vacant positions and reallocated the duties of those positions among the remaining staff. Funds for temporary summer help, except that needed in absolute emergencies, have been deleted. Purchases of all kinds are being held to an absolute minimum. No new equipment is being purchased.

This reduction in costs will require the temporary discontinuance of the famed Fishermen's Paradise on Spring Creek in Centre County. The Upper Spring Creek Hatchery on the same stream will be closed. This decision was influenced by the fact that pollution from the University sewage plant has made operations here most marginal.

The production of muskellunge at the Tionesta and Union City Hatcheries will be changed at a considerable reduction in cost by eliminating tank culture and confining the raising of these fish to ponds only.

Operations at Erie will be changed by abandoning the old fish hatchery in the City of Erie and transferring operations to our new Walnut Creek site, eight miles to the westward. Plans are being made for the City of Erie to take over the hatchery building. The Commission may continue maintenance of the aquarium in the building.

RESEARCH

Again, relating the 13-month figures of \$245,575 for 1961-62 to the \$173,813 estimate for 1962-63, shows a reduction in this program of \$52,872. Since most of the expenditures for this project consist of personnel, it has meant the reduction of our staff of 14 biologists to ten. In addition to the four biologist positions being abolished, two Clerk-Stenographer positions have also been discontinued. Vacant positions to be abolished include a Security Officer, a Clerk-Stenographer and a Clerk-Typist. Two of the four biologists have already found employment with the U. S. Fish and Wildlife Service with our assistance and we are attempting to find suitable employment for the other two.

As a part of the reduction in the Research budget, the six regional offices maintained jointly by Research and Law Enforcement have been discontinued. The biologists paid under Research now do their work from their homes rather than through the offices which were previously rented and staffed with clerical help.

LAW ENFORCEMENT

Correlating the 13- and 12-month figures of \$481,645 for 1961-62 and \$381,499 for 1962-63, shows an actual reduction here of \$63,097. The savings created in this reduction include Law Enforcement's share of the former cost of the Regional Offices. All seasonal help and warden trainees have been eliminated. Four new warden vacancies will not be filled. Since the warden staff conducts their work in a hazardous field, the Com-





mission decided to reduce the retirement age for this group from 65 to 62 years. This will lead to the retirement of six wardens during the next fiscal year at a considerable saving of salary. The districts which these wardens formerly handled will be re-distributed among the remaining staff.

CONSERVATION-EDUCATION

On a comparable basis as above, the 1961-62 budget of \$98,693 was increased for 1962-63 to \$114,660 or an actual increase of \$23,559. The Commission feels that in this particular field more emphasis should be placed upon greater public understanding of our problems than in the past, so in this particular field of activity a slight increase was granted rather than a reduction made. The price of the PENNSYLVANIA ANGLER was also increased from \$1 per year to \$2.

LANDS AND WATER MANAGEMENT

Transposing the 1961-62 budget figure for 13 months to a 12-month basis reduces the item of \$127,570 to \$117,757. This compared with the recommended amount for 1962-63 of \$139,530 shows an increase in this item of \$21,773. The Commission did not feel that it should reduce its expenditures for the management of the areas it now has under administration. These consist largely of the maintenance of access sites, fishing lakes and other Commission properties which must continue to be maintained. A \$20,000 capital improvement item is included as the annual installment on the purchase of the Walnut Creek site in Erie.

ENGINEERING AND DEVELOPMENT

On the same basis of comparison the 1961-62 figure of \$325,795 and 1962-63 \$277,959 shows a decrease in costs here of \$22,775. This saving is being made by abolishing certain engineering vacancies and the elimination of a stream improvement crew carried this year.

SUMMARY

Thus, on a comparable basis of estimates the Fish Commission for 1962-63 has reduced its operating costs by \$288,923.

The above decreases in appropriations for 1962-63 refer only to the program of the Fish Commission. Costs have increased in payments to other departments due to higher costs for social security, retirement benefits, etc., in the amount of \$16,662. This offsets the \$288,923 reduction in Commission program to the \$272,261 decrease in total expenditures from the Fish Fund previously mentioned.

We have painfully brought our estimated outgo in reasonable balance with our anticipated income. We are, of course, uncertain as to whether the trend in license sales will continue downward or improve and we have no way of knowing how expensive the Legislature's recent action in granting free licenses to those who fish on fee ponds may be. I can assure you, however, that the Fish Commission is attempting to run its affairs on as businesslike basis as is humanly possible.



The Sturgeon Surgeon

The grimacing fisherman is my nine-year-old daughter. But the grimace, sad to relate, has little of piscatorial pride in it. It's composed mainly of sheer disgust at the slimy "thing" that her father has thrust upon her. "It" is a twelve-pound rock, or bull-nosed sturgeon, *Acipenser fulvescens*, and the fact that it *might* have reached eight feet and a weight of over 300 pounds seemed to impress her little. As soon as she heard the shutter click she dropped the fish, stomped into the house and washed her hands!

Fortunately I have other relatives built of somewhat sterner stuff. And, since I occasionally indulge in the nepotic practice of hiring my sister as a part-time laboratory assistant, I handed her the fish. She, too, was unimpressed. But, on pain of being fired on the spot if she didn't, she rolled up her sleeves and began the operation.

I must go back at this point and say that the sturgeon came to me, or rather to Carnegie Museum, from the Bellefonte fish hatcheries through the kind offices of Gordon L. Trembley. The museum lacked a sturgeon skeleton for its study collections, and this beast most admirably filled the gap.

Thanks to everyone concerned we are now able to record the prehistoric occurrence of the bull-nosed sturgeon from the Ohio River, three miles from its point of origin at Pittsburgh. Characteristic sturgeon scales were recently excavated from a refuse pit at the McKees Rocks mound site (c. A.D. 1300-1500) on the southwest bank of the Ohio River at McKees Rocks, Pa., by William E. Buker and Richard W. Lang, of the Society for Pennsylvania Archaeology, Allegheny Chapter. Judging from the size of the scales (note the large, diamond-shaped scales running down the back of "it") the fish was between three and four feet in length.

Although there are historic references to this fish in the upper Ohio, this is the first tangible evidence of its prehistoric occurrence in the area. Fish remains associated with archaeological sites on the Allegheny and Monongahela watersheds have thus far failed to produce it. Surprisingly enough, however, sturgeon re-

Reappointed to Fish Commission



R. STANLEY SMITH, ESQ.

R. STANLEY SMITH, ESQ., 103 East High Street, Waynesburg, was reappointed to the Pennsylvania Fish Commission by Governor David L. Lawrence on January 24, 1962, and will serve until 1970. He was first appointed a member of the Commission by Governor George Leader on June 1, 1955. He is from District 2 embracing Beaver, Allegheny, Washington, Greene, Armstrong, Indiana, Westmoreland and Fayette Counties.

A prominent attorney and sportsman, Mr. Smith received his B.A. degree from the University of Pittsburgh in 1930. He is a past president of the Greene County Bar Association, previously served as solicitor for Greene County. Former president of the Pennsylvania Division, Izaak Walton League, he is also affiliated with the Waynesburg Sportsmen's Association, has aided the work of the Jefferson Sportsmen's Club, the Greene County Conservation League and the Pennsylvania Federation of Sportsmen's Clubs.

mains were conspicuously absent from the large collection (1,755 fish bones) of bone refuse at the Eschelman site (A.D. 1600-1625) on the north bank of the Susquehanna River at Washington Boro, Lancaster County, although other sea-run fish were common—shad, striped bass. So perhaps the sturgeon did not rank very high on the aboriginal bill of fare. The sturgeon skeleton is largely cartilaginous and most of it simply disintegrates in the ground, but the large, bony scales and the characteristically pitted head plates do survive. The lower Susquehanna was the site of a sturgeon fishery in colonial times, so their remains would certainly be expected to turn up in Indian sites more commonly than they do.

Should you ever be in need of a first-class sturgeon surgeon, let me know. My sister has since quit, for some unknown reason, but maybe I can talk her into it again.—John E. Guilday

The Age and Growth of the **Chain Pickerel**

in Pennsylvania

PART XIII

By

KEEN BUSS and JACK MILLER

Fishery Biologists

**Benner Spring Fish Research Station
Pennsylvania Fish Commission**

THE chain pickerel is the summer-winter game fish of Pennsylvania. It is one of the most popular game fishes of the northeastern portion of the Commonwealth, particularly in the Pocono region. An inhabitant of many of the lakes and streams which are tributaries of the Susquehanna and Delaware Rivers, this pike is not found in the western counties which lie in the Allegheny drainage.

The chain pickerel gets its name from the chain-like markings on its sides. In the early days in New England it was called the "Federation Pike," an allusion to the chain of thirteen linked rays which were stamped on certain copper coins. In the south, the natives call this species the "Jack."

The ideal habitat for this pike is shallow water with abundant vegetation on mud bottoms. However, pickerel are often found in deep, cold ponds with little or no vegetation, and if abundant forage fish are present these pickerel are larger than average though fewer in number. Lake Wallenpaupack and Upper Woods Pond (Table II) are illustrations of their fast growth in comparatively weedless, cold ponds.

Chain pickerel do well in waters of high natural acidity and are usually found with populations of golden shiners, brown bullheads, pumpkinseeds and yellow perch.

The pickerel, like other members of the pike family, spawn in the spring soon after the ice goes out. In 1961, they started to spawn in Black Moshannon Dam in Centre County on March 16 and a ripe female was found as late as May 4. This long spawning season may have been due to the long, cold spring. The eggs are usually broadcast in swampy or flooded areas and no care is given by the parents. Little is known of the egg

production of chain pickerel but it is said that a two-pound female produced 30,000 eggs.

The young have comparatively fast growth, first feeding on small crustaceans and then changing their diet to fish. They also feed upon such things as frogs and snakes. They reach a pound in weight at about 17 inches and quickly add weight thereafter. At 20 inches they weigh about 2 pounds. This length-weight relationship is illustrated in Table I.

TABLE I
**Length-Weight Relationship of
632 Chain Pickerel from Pennsylvania Waters**

<i>Length in Inches</i>	<i>No. of Fish</i>	<i>Average Weight (Pounds)</i>
10.0-10.9	14	0.24
11.0-11.9	20	0.30
12.0-12.9	48	0.39
13.0-13.9	97	0.53
14.0-14.9	153	0.66
15.0-15.9	97	0.79
16.0-16.9	84	0.94
17.0-17.9	39	1.19
18.0-18.9	20	1.45
19.0-19.9	22	1.73
20.0-20.9	14	2.19
21.0-21.9	11	2.37
22.0-22.9	7	2.73
23.0-23.9	4	3.24
24.0-24.9	2	3.70

This pike does not grow as large or attain the age northern pike and muskellunge do. The record chain pickerel, according to the "Field and Stream Magazine" records, is a 9-pound, 3-ounce fish, 27 inches long taken from Medford Lake, N. J. The longest chain pickerel is a 30-inch, 9-pound individual caught from Green Pond, N. J. It is possible that larger pickerel than this have been taken from Pennsylvania waters. Any authenticated records would be appreciated by the research staff.

Table II lists the growth of pickerel in fourteen Pennsylvania lakes and the Delaware River. The growth is consistent as compared to many of our other species. Some lakes are not represented by many specimens. This is due, in part, to the fact that they do not readily go into a trapnet.

If you plan to fish the regions which have chain pickerel, artificial spoons, spinners and live golden shiners are the most consistent baits. Don't miss the tip-up fishing with shiners in the wintertime through the ice. Enjoy this summer-winter game fish.



THE CHAIN PICKEREL is an inhabitant of many of the central and eastern water areas of Pennsylvania. On cold winter days the chain pickerel furnish excitement and sport for those who are hardy enough to face the elements.

TABLE II
Average Calculated Total Lengths of Chain Pickerel at Each Annulus

Water	County	No.	I	II	III	IV	V	VI
Greeley Lake	Pike	7	2.8(7)	7.3(7)	11.6(5)	14.4(3)	15.2(2)	
Egypt Meadows	Pike	13	6.4(13)	11.9(12)	14.6(2)			
Brady's Lake	Monroe	17	5.0(17)	10.0(17)	13.6(16)	16.2(9)		
North Jersey Lake	Wayne and Monroe	10	5.3(10)	10.5(10)	13.4(3)	15.3(2)		
Upper Woods Pond	Wayne	18	6.9(18)	12.1(7)	15.6(2)			
Lake Lorain	Wayne	2	6.8(2)	11.6(2)	16.4(2)			
Idlewild Lake	Susquehanna	19	5.2(19)	10.1(19)	13.5(16)	19.8(2)		
Bruce Lake	Pike	7	7.9(7)	13.3(7)	16.4(4)			
Promised Land Lake	Pike	13	5.5(13)	11.2(13)	15.0(10)	17.4(3)		
Quaker Lake	Susquehanna	9	3.6(9)	10.0(9)	13.4(6)			
Lake Winola	Wyoming	18	4.4(18)	8.9(18)	12.7(16)	17.9(3)	22.3(1)	
Duck Harbor Pond	Susquehanna	29	5.5(29)	11.1(29)	14.1(17)	16.1(1)		
Lake Wallenpaupack	Wayne and Pike	30	6.8(30)	12.9(28)	17.5(14)			
Black Moshannon Dam	Centre	59	5.7(59)	10.2(59)	13.7(49)	16.9(13)	19.6(3)	21.1(1)
Delaware River	Wayne, Pike and Monroe	13	5.3(13)	10.0(10)	15.3(4)	17.5(1)		
Fourteen Lakes and One River		264	5.5	10.7	14.4	16.8	18.9	21.1
() Number of Fish								

Figurines in Ice



GOBLETS, sparkling, clear and clean from Dame Nature's glassware cupboard.



ELEPHANT FEET, ponderous, stamping, icy feet.



POTATO MASHERS or clodhoppers? Strange hoofs?



CRYSTAL DISHES, sherbets shine like diamonds against the black velvet of the trout stream.

Along a Winter Trout Stream

Photos by Don Shiner



SIX PINS or old wine bottles?



OCTOPUS with slimy, icy tentacles awaits victim.



COTTON CANDY on a stick.



EXQUISITE TRINKETS from a winter world of beauty.

Opportunities for Anglers in Audubon Refuge Stamp Proposal

The number-one reason why the National Audubon Society has proposed a \$2 wildlife stamp as an admittance pass to the National Wildlife Refuges is that "the refuge program needs additional funds," President Carl W. Buchheister told the leaders of other conservation organizations in Washington, D. C., December 8. He spoke at a conference sponsored by the National Wildlife Federation.

In explaining the proposal, Mr. Buchheister also said:

"This kind of fee system can be a useful tool in preventing too much public use of a refuge when too many trampling feet or too many automobiles damage the habitat.

"A certain number of citizens make special recreational use of the refuges because the refuges make wild animals accessible, available or visible. It seems only fair that these citizens make an extra contribution to the establishment and maintenance of the Refuge system."

Mr. Buchheister said that since the proposal was first announced October 30 at the NAS convention in Atlantic City, a great deal of favorable mail has been received. "We have yet to hear the first objection from a bird watcher, and I am convinced that sports anglers will be as willing to help pay for the additional fishing opportunities provided by the refuges as the duck hunters are to take care of the ducks.

"The new 'Migratory Wildlife Conservation Stamp' would be sold through the post offices (as are the duck stamps) as an annual admittance pass for adults wishing to enter the refuges for bird watching, wildlife photography, fishing, or other forms of recreation. Holders of Duck Stamps would be entitled to the same privileges, so no person would be required to buy both stamps.

"At this stage of our study," Mr. Buchheister said, "we suggest the new stamp be issued at a fee of \$2; that it be required of all persons 17 years of age or older; that the stamp itself be similar in design to the Duck Stamp except depicting each year a non-game species of migratory wildlife, and otherwise colored or shaped in such a way as to be distinguishable at a glance from the Duck Stamp."

Vending Machines at Hatcheries Pay Off

The New Mexico Department of Game and Fish has discovered a new way of helping defray expenses at their hatcheries. They installed vending machines to dispense handfuls of pellet-type fish food for nickel or dime purchases by hatchery visitors to feed the fish. Officials at the hatcheries say the deposits are mounting; since installation the two small machines have added nearly \$400 to the department's funds.

Tackle Tips

By DON SHINER

Traveling footpaths along trout streams I have been unmercifully poked, slammed and bruised by a landing net, snagged on twig or branch. The elastic cord would stretch to its limit, then snap back with "back-busting" force!

Some years ago I resolved to rid my fishing gear of this punishing accessory. This was fine. The eight-to ten-inch trout were landed very well by sliding them up on shore. Now and then a trout that hit the feathers proved to be an exceptionally husky individual. A trout of fifteen to twenty inches will not stand such clumsy foolishness. On these occasions, I dearly wished for a landing net. Still, remembering the painful jabs, curses, and temporary loss of religion, I would not give in to the impulse to again carry a net fitted with an elastic cord.

I tried a folding or collapsible landing net. This slipped into a leather sheath that was attached to the belt around the mid-section. The drawback to this type came when the metal hoop became worn and no longer would fold along the "dotted line."

What was needed, I thought, was a very tiny net, perhaps one about six inches in diameter, that could fit into a fishing vest pocket, but with a bag long enough to handle a husky trout. Pocket-size nets were unavailable, searches in various tackle shops proved fruitless.

While searching for this "ideal" net, I found, by chance, a counter in a dry goods store filled with sewing supplies, among which were embroidery hoops. These measured about six inches in diameter. I purchased a set. A hasty trip to a sport shop uncovered a replacement net generally sold for restringing old frames.

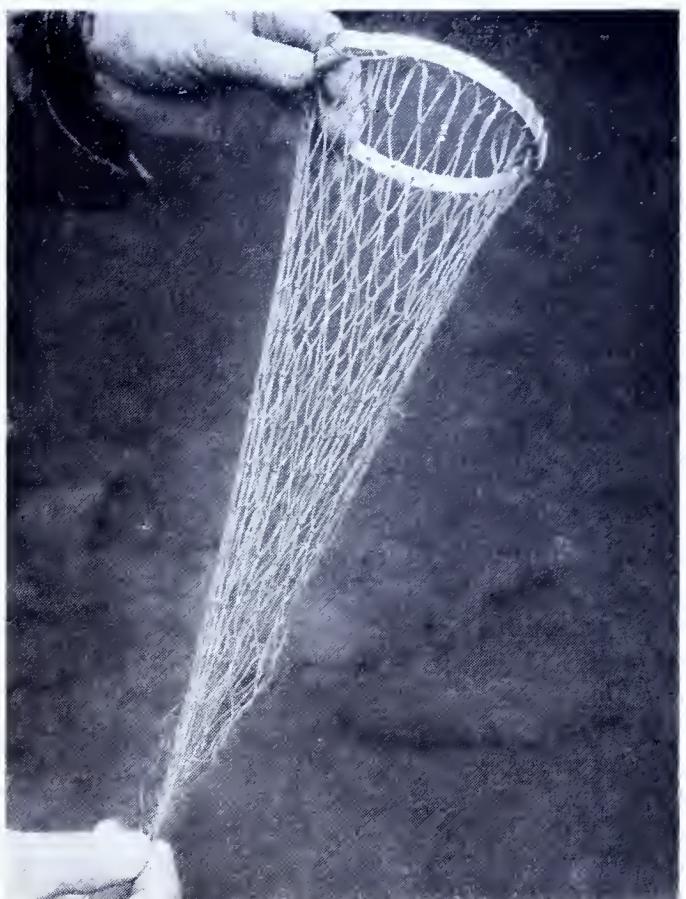
At home I cut a three-foot length of nylon line and laced the net to the embroidery frames. The finished net fit the palm of my hand and packed nicely in the pocket of a fishing vest.

The chance to use this tiny, pocket size net came on a subsequent trip astream. A nice fat brown slammed my streamer and for several minutes it was a touch and go battle, with the odds stacked in favor of the trout breaking the finely tapered leader. After delicate handling, the trout appeared exhausted. I removed the embroidery net from my pocket, submerged it under water and slid the long trout through the small six-inch hoop into the long bag. This pocket net worked fine! It handled numerous situations on later trips astream. This, coupled to the fact it was no longer vulnerable to every twig or branch along the bushy shoreline, sold me solidly on its virtues. The net lacks a handle, but this is no serious handicap in landing a trout. Component parts (embroidery rings and net) cost a mere 75 cents.

Try This "Tuck-a-Net"!



EMBROIDERY HOOP NET fits nicely in your hand for instant action.



DANDY LITTLE ITEM, easy to make, is 6 inches in diameter, 18-inch long bag, can land husky trout.



TUCKS NEATLY into fishing vest pocket.



CAN'T BANG YOUR BACK by catching on every twig along the stream bank.

Boating

Nautical Lingo

How many times have you heard someone comment that the speed of a vessel on the water was 15 knots, nodded your head in polite agreement and wondered just how fast the ship was proceeding?

Because of the rapid rise in boating popularity, nautical references are just as rapidly becoming fused into everyday household language. Hardly a discussion of that exciting next weekend boat trip passes without the mention of such terms as "knots," "cleat," "beam," "draft," or—"c'mon dad, it's my turn for a trick at the helm."

Nautical references to speed and distance, for instance, vary considerably from those commonly used in land travel. When referring to a knot as it applies to progress of a vessel, we speak of it as a unit of speed equivalent to one nautical mile per hour. Thus, when a boat covers 15 nautical miles per hour her speed is 15 knots.

A nautical mile is 1.15 statute miles. The statute mile is the common measurement in highway travel. So when a boat is traveling at 15 knots, it is proceeding at 17.25 statute miles per hour.

Another nautical term of measurement is the fathom. It is a measure of length containing six feet and is used chiefly in measuring depth of water by soundings. A fathometer is a trade name for a sonic depth finder.

There are other nautical terms that have meaning far different from the landlubber's common conception. For instance, "beam" refers to the greatest width of a boat, not something upon which a roof rests. "Cleats" are not projections on the bottom of a football player's shoes, but hardware on a boat to which lines are fastened.

Instead of meaning compulsory entry into the armed forces, "draft" means, nautically, the depth of a vessel in the water from the water line to its lowest point. A nautical "head" is a boat's toilet. A "log" is not a felled tree but the record book of a ship's activities. We usually refer to the man who paints our house as a "painter," but nautically this means a line by which small boats are towed or made fast. A "transom" is not an opening above the door in a room, on outboards it is the part from which the motor is hung.

A "trick" in seamen's language is a period of duty at the helm, not a mischievous act. The nautical version of "trim" has no reference to a figure, but means the way a boat floats in the water with reference to the horizontal plane.

That glossary of nautical jargon, however, should include ample mention of water safety items such as "wake hazard," "life jackets," "don't overload," and "rules-of-the-road."

Car-top Boats

Although the hull that will take a 50-horsepower outboard is still in great demand, a goodly group of fishermen, campers, hunters, and such are looking for a light boat that can easily be hoisted on top of the family car and carried into remote areas. Some who seek this portable craft settle for a compromise and often end up with a tipsy, unsafe one.

A light boat need not be an unstable one. Design is important, and also how the craft balances with a load. Weight obviously is important but certainly not to the exclusion of safety. Selection boils down to trying out several of good manufacture and picking the one that suits your needs best. Bear in mind the motor limitations of these car-top craft. Usually a five-horse kicker is plenty and often a three will do the job. Be mighty careful about over-powering the little vessels.

A 12-footer comfortably handles two men and a limited amount of gear. If you're fishing, two are plenty anyway. More than normal care should be taken in choppy water, going over big wakes, and such as that. Remember these craft are not made to conquer big water. Handle with care.

Cruising Cookbook

A culinary tip to live-aboard boatmen (equally good for the trailer dweller and also mighty useful to impatient people like myself who have to cook up a home meal but loathe lengthy preparation): There's a book out—"The New Cruising Cookbook," that'll be a big help in solving galley problems.

Write authors Russell K. Jones and C. McKim Norton: "We know that the sailor who cooks on a small boat usually wants to spend a minimum amount of time in the galley. For this reason many complete meals are included which take less than 30 minutes. Most of the recipes call for less than an hour's cooking time from the moment the stove is lit . . . on the other hand, this book is not for those who believe that bad food is a necessary evil on a small boat. The pseudo-rugged life typified by eating cold beans or tuna fish right out of the can is not for us. Our philosophy is maximum comfort with . . . essential simplicity. . . ."

I've been using it as cooking guide at home as well as afloat . . . and as I mentioned, its simplicity appeals to my lazy nature. Published by W. W. Norton & Co., New York, it sells for \$4.50.

When your boat takes on water from a slow leak or a rain storm, don't scrape off the floor paint by using an old tin can for bailing. Here's a better way. Get yourself a paper milk carton and slice off the top. There will be no more scratched paint—one carton will last throughout the season.

Trick Skiing Made Easy

A very good pocket-size manual "Trick Skiing Made Easy" is available on request from Bill D. Clifford, Executive Manager, American Water Ski Association, Winter Haven, Fla. It employs photos made with a sequence camera, gives clear step-by-step instruction on how to master side slides, backwards starts, turn-arounds, swan wake turns, etc.

Scuba Diver Training Film

A new scuba diver training film is now available for rental or purchase. Titled "Beyond the Surf," the film helps train skin divers to the exacting requirements of their sport. Everyone who aspires to safe skin or scuba diving will get good training for his own protection with the new film. For details write—Kemp R. Niver, Renovare Co., 727 North Fairfax Avenue, Los Angeles 46, Calif.

Oarlocks—Rowlocks

"Oarlocks" are used for sculling . . . "rowlocks" are used for rowing. Is this correct? Ye Ed is always referring (wrongly, he supposes) to the "oarlocks" while rowing a boat . . . anyone know for sure?

A few simple precautions will help prevent marred decks and cut down the amount of maintenance and revarnishing around your boat.

Some recommendations include the use of rubber automobile floor mats under anchors, fuel containers and fishing tackle boxes and for cutting bait. These mats will eliminate a lot of scratches that otherwise might occur.

Place a coconut mat on your pier so passengers can wipe sand from their shoes before coming on board.

Boaters need a little self-consciousness. If they had it, big boat wakes would be quickly observed and corrected. The waves created by one boat can be dangerous or a nuisance to another.

Boats traveling slowly have small wakes and boats planing have small wakes. Boats in "squat"—where the tail digs in—create high waves. Also, heavily-loaded boats traveling fast—or trying to travel fast—have high wakes.

How's your wake?

The expression . . . "cat out of the bag," has its origin in the early days when sailors served before the mast and when discipline was strict in the British Navy. The cat-o'-nine-tails was usually chosen for meting out punishment and this cruel, whip-like device was kept in a bright red bag . . . so that the blood from its victims would not show. When it was to be used, and taken from the container, word was quickly passed from man to man around the ship . . . "the cat's out of the bag!" . . . the expression is in common usage today.



Meaning of OBC Capacity Plate

The boat builder who participates in the OBC boat rating program on "pounds and power" capacity submits computations on Boat Capacity Application forms supplied by OBC. Separate forms are used for each model that is to be rated.

If hull design and specifications are changed by the boat builder after his craft has been rated, an application for rating the new model must be re-submitted for OBC approval.

Based on these application forms OBC issues boat weight and horsepower capacity approvals to boat manufacturers. This entitles the boat manufacturer to display the OBC capacity plate.

Whenever you buy, borrow or use an outboard boat, take note whether or not an OBC rating plate is on the transom and adhere to the "pounds and power" it stipulates.

For better food products you trust trademarks, for better wearing apparel you inspect clothing labels and for safer boating you should be aware of this metal plate.

EXAMPLE of exact size of OBC plate for boat rated at 70 horsepower and 1,345 pounds.



Notes . . .

from the Streams

District Warden William Miller and I were checking mine drainage in the Scaffold Lick area recently. About 3 miles out of Smethport I saw a black object in an old cornfield. We stopped, figuring it was a dog feeding on a dead deer. Climbing a bank to get a better look we found it to be a cub bear in very poor condition, estimated its weight at about 20 pounds. Tracks all over the field indicated the poor little fellow had been trying desperately to find some old ears of corn to eat. Warden Miller and I got a bag and a half of corn, put it under a hemlock tree at the edge of the cornfield. We hope the little guy is curled up around it, purring like a kitten full of cream.—**District Warden Wilbur Williams** (McKean)

#

District Warden Bernard D. Ambrose (Elk) last October guided a group of about 40 boys of Fox Township Junior Conservation Club on a field trip to northern Elk County. The party visited various streams of the area with the highlight trip to the East Branch Clarion River Flood Control Reservoir. The boys were very disappointed to learn the reservoir plus the many miles of beautiful stream below it were barren to fishing because of mine acid drainage.

#

On Sunday, December 31, 1961, **Regional Supervisor Clair Fleeger** and I checked two ice fishermen on Chapman Lake. They were doing figure skating around their tip-ups while waiting for bites.—**District Warden Walter G. Lazusky** (Lackawanna).

#

District Warden Kenneth Aley (Potter) predicts good trout fishing in 1962 after checking many streams in Potter County. He found an excellent holdover of trout and saw many trout spawning during September, October, and November.

#

Patrolling the vicinity of Hopbottom last season I saw a trapper checking his traps with a 4-inch pickerel caught in a trap, the rear portion of his body twisted in an "S" shape, still alive, when released, swam away. Anyone catching an "S" shaped pickerel is hereby notified this fish has been through the "traps!"—**District Warden Stephen Shabbick** (Wyoming).

#

District Warden G. Max Noll (Susquehanna) finds ice fishing off to a good start at the following lakes: Montrose, Forest, Page, Little Elk, Tingley, Heart, where pickerel, perch and bluegills furnished most of the action. Quaker, Silver and Ely Lakes ice was still considered unsafe.

#

Paul Thompson, Tionesta, had some fine days astream last season on the Allegheny River, catching three muskies 12, 13, 18 pounds; 36, 38 and 40½ inches.—**District Warden Norman L. Blum** (Forest and Clarion).

#

Two men fishing Adams Pond near Equinunk found the ice fishing slow. They took a turn around their tip-ups checking bait only to find eight of their 10 largest minnows missing from the bait bucket. Backing up to a fire on the shore they noticed a black object jumping in the snow along the shore. Straightway to the minnow bucket and back out with another large minnow stolen by the criminal . . . a large mink!—**District Warden Harland Reynolds** (Wayne).

District Warden Joseph E. Bartley (Pike) took his 13-year-old daughter, Linda, duck hunting the past season. On return she wrote this poem for a school assignment:

THE HUNTERS

My father said it's lots of fun,
Untie the dog and get your gun.

Got my gun, piled in the truck,
Went to a place full of muck.

Waded in mud up to our knees,
Dog was covered with drowned fleas.

Waited and watched the sky in vain,
All we saw were drops of rain.

My father said it's time for lunch,
When then and there came a great big bunch.

"Shoot! Shoot!" he yelled. "Over there!"
I threw my sandwich into the air.

Home, tired and muddy . . . out of luck,
Between the two of us nary a duck.

#

Walleye fishing so far this winter has been good but old Dame Nature is making it tough. Shore ice has been too thin to walk on and to fish the better holes anglers must first "break the ice" and float it out of the way.—**District Warden Kenneth Corey** (Warren).

#

Walleye catches were reported from Cambridge Springs area of French Creek. Some northern pike and large perch were taken from Conneaut Lake. Ralph Vaughn, Saegertown, reports spearing carp in French Creek, bagging carp and suckers, the largest carp weighed 34 pounds.—**District Warden Raymond Hoover** (Crawford).

#

Three men sat fishing from shore at Pymatuning Lake, on an ideal hunting day last season, rods at ready, shotguns across their knees. Inspection showed 1 mallard, 1 Canada goose and 3 hefty walleye. One gent asked, "How do you put a goose on a stringer?"—**S. Carlyle Sheldon, Northwest Regional Warden Supervisor**.

#

"Early ice" in Luzerne County forms later than in counties farther north and can be deceptive. While most of the surface of a lake may be frozen, patches of open water cause seepage to adjacent snow-covered ice forming a slush. A crust will form atop the slush during a short cold snap which will almost, but not quite, support a man. The resultant plunge through the crust to the supporting ice a foot below, sends many ice fishermen scurrying back to shore. Rains have converted our lake snow coverings to good solid ice in most cases. With little snow to date (mid-January), our lake surfaces have frozen to "glass-like" surfaces. Ice fishermen on Harvey's Lake must compete with hundreds of skaters and ice-boaters for equal space. The lake is a wonderland of winter sports for those unafraid of the cold outdoors.—**District Warden James Yoder** (Luzerne-E. Sullivan Counties).

#

William Wilhelm figures he lost two large muskies while fishing at Gordon Lake in late October. Using 20-pound test line he was unable to land the two fish.

#

Elmer Howserberger had a fine day on Gordon Lake October 28 when he landed 5 largemouth bass and a fine pickerel.

Former Warden Dies

A former fish warden, Harry Z. Cole, of Canonsburg, Pa., died at Washington, Pa., hospital, on January 23, 1962. Mr. Cole was appointed a warden for Montgomery County on June 1, 1935, and retired on April 30, 1952. A hard working officer, he was respected by all who knew him. The ANGLER pays final tribute to an old friend.

Lehigh Club Junior Fly Tying Classes Underway

Winter fly tying classes for Juniors of the Lehigh County Fish and Game Protective Assoc., Inc., is underway for 1962. When trout season opens, students should have a nice assortment of tempting flies for the new fishing season. Raymond C. Moyer is Advisor of Junior Activities Committee. Mark F. Passaro is President of the club.

Biologist Al Larsen Transfers To U. S. Bureau of Commercial Fisheries

Alfred Larsen, with the Pennsylvania Fish Commission for 11 years, transferred to the Bureau of Commercial Fisheries, Ann Arbor, on November 1. Al is with the Branch of Exploratory Fishing and Gear Research. He will be one of the scientists aboard the *Kaho*, the brand-new 65-foot exploratory fishing vessel assigned to work on the Great Lakes. Pennsylvania, faced with a reduced budget, was forced to eliminate the Lake Erie research work Al had been engaged in for several years and asked the Bureau to hire him. Al is well acquainted with the commercial fisheries of the Great Lakes and is experienced in vessel operation and maintenance. The Bureau is obligated to Pennsylvania for letting us have this man.—*Bureau of Commercial Fisheries, Ann Arbor, Mich.*

Jersey Shore Boaters Escape Drowning in Icy River Waters

Two boaters narrowly escaped drowning in the icy waters of the West Branch, Susquehanna River near Jersey Shore on November 21. On the spot at the time, District Warden Lee F. Shortess (Lycoming) and Special Fish Warden S. C. Merlochi saw the men start their motor on an 8-foot pram of narrow beam; cruise downriver. Suddenly the small craft went under throwing the men into the 35-degree water. They hung onto their overturned boat until the wardens rescued them. Only one life saving device was aboard, the operator of the tiny craft later charged with failing to properly equip his boat.

ADDRESS CHANGED? Club Secretary changed? Promptly notify Pennsylvania Fish Commission both old and new data.

CLUB NEWS? The ANGLER wants news of club activities. Photos and snapshots always welcome on club projects. Please put us on the mailing list for your club publication. Address: PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.

James A. Wright, Popular Brookville, Pa., Sportsman, Passes On

James A. Wright, well-known sportsman and President of the Jefferson County Federation of Sportsmen's Clubs, suffered a heart attack and died on November 7, 1961. Staunch friend of the sportsman and fighter against bad conservation practices, his stilled voice will be sorely missed. The PENNSYLVANIA ANGLER pays respectful tribute to a fine gentleman.

Harrisburg Hunters and Anglers Elect Officers-Directors 1962

Frank Hoffer, Hummelstown, was re-elected president of the Harrisburg Hunters and Anglers Association recently at annual election of officers. Also re-elected were: Earl Diehl, Harrisburg, vice president; Lester Flowers, Camp Hill, treasurer, and Charles Gilman, Harrisburg, secretary. Directors elected: Wallace Reed, Ben Rosen, Martin Yountz, Howard Murray, Jr., F. J. Winand, Jake Schlosser, John Bistline, Richard Charles, Jack Meighan, Paul Markle and John Plowman, Jr.

Cigarette Tax Sponsors Wisconsin Acquisitions

The Wisconsin Conservation Commission has released details of its first purchases under the stepped-up land acquisition program made possible by the new one cent tax on cigarettes.

The commission launched the program with the purchase of 3,435 acres at a cost of \$222,942. Prices ranged from \$2 and up per acre depending on location, availability and the amount of lake and stream frontage involved. The average price was \$64.88 per acre.

Game land acquisitions amounted to 1,771 acres at a cost of \$38,880; forest and park lands totaled 1,026 acres at a cost of \$149,791 and included 11,700 feet of river and lake frontage; and fishery acquisitions amounted to 678 acres for \$40,371 including at least 10,000 feet of lake and stream frontage as well as springs and spawning grounds.

ICE FISHERMEN who detest the cold, wet job of skimming ice from holes can solve the operation "hand freeze" with an ice-port. It's an ingenious device that fits around the hole, has a bag for rock salt. The salt keeps the hole and your line from freezing and some claim the salt attracts fish. The gadget is now available at sporting goods stores.

On the NATURE TRAIL SNOW...

True SNOW CRYSTALS are not frozen clouds, but are the invisible moisture between and around the cloud droplets that have crystallized into geometric forms. Irregular snow granules are frozen cloud droplets.

Snow crystals, usually hexagonal, are more beautiful, symmetrical than the crystals of any of the minerals. The feathery snow crystals are formed in the lower warmer clouds and the smaller, more solid ones come from high, intensely cold clouds.

A SNOWFLAKE is a cluster of crystals. Snow, as stored water, is an important factor in the natural regulation of the supply of water. Snow, as glacial ice and, when melted, as surface water, plays an important part in land erosion and in converting rocks into soil.

SNOW forms over all sections of the earth, but in warmer climates falls as rain. Much heavier snows fall in the temperate zones than in the arctic regions. Reason: more moisture in the air.—Conservation Volunteer

Campfires . . .

Charcoal and flaked flint form the unmistakable spoor of early man in America. The long migration trail from Bering Strait spreads fan-wise across the Continent and is dotted with the remains of ancient campfires.

Almost as imperishable as the flint projectile points that accompanied these Ice-Age hunters, is the charcoal from their cooking fires.

Just how decay resistant charcoal can be is indicated by specimens from Tule Springs, Nev. According to the Carbon 14 method of dating, they are nearly 24,000 years old. Fossil shells in the rocks are documentary proof of the kinds of crustaceans that inhabited the ancient seas. In like manner charcoal may be used to identify the species of trees that fueled hunters' fires thousands of years ago. In the arid States of Arizona and New Mexico hickory charcoal has been found in some of the ancient campfire sites. This indicates that a moist climate once prevailed in the Southwest. Today there are no native species of hickory in this area.

Prehistoric campfire sites also tell us something of the animal life that these early hunters encountered. Ice-Age man brought in his kill to be roasted over the flames. Mastodon and mammoth flesh and the meat of an extinct bison were cooked over hot coals that persist today as charcoal.

The campfire is one of the few remaining links between modern man and his Stone Age ancestors. The twentieth century hunter seated beside a night campfire finds that his world has shrunk to that of his primitive forebears. Beyond the fire-light's bright glare lies the unknown. No longer is it patrolled by wild beasts. The saber-toothed cat, the mammoth, mastodon and short-faced bear have disappeared, but man has not yet learned to live at peace with his kind.

Greater terrors than all of the snarling and trumpeting beasts of the Ice Age lie out there beyond the tiny circle of light. High in the night sky a jet bomber sweeps across the heavens. Guided missiles with atomic warheads stand poised on launching pads for instant retaliation should the enemy strike without warning.

Man, the hunter, has now become the hunted one. Civilization has made the full circle. If the holocaust should be unleashed, the ultimate survivors of the bombs and the fallout may have to seek the shelter of the friendly campfire until they have picked up the broken fragments of their civilization and pieced them together again.—Larry Stotz

The Feminine View

By BETTYE BREESER

Some choose to watch the sun as it yawns and stretches upon the eastern sky. They use fishing as an excuse to get a first-hand view of the world drenched in cleansing dew, and see the first golden streaks of morn herald another day. Others reap real joy in watching a fiery sunset slowly ebb into the purple shadows of night—silently and majestically. There are those, too, who find a healing tonic in the blue black night, when the stars seem to nudge the golden moon across the heavenly arch. Moonlight transforms a dusty world into a realm of cool, sparkling splendor.

Slow moving wrinkled masses of green algae stir the split circle lily pads in a restless dance where some anglers choose to cast. Here wax white blossoms, filled like a cup of yellow gold, offer perfect beauty amid a rug-like pattern on the water. The plunking of greenback frogs interrupts the sweet music of wind in distant trees, and tiny birds of the grasses dart close to the fisherman's gear.

Meadow grasses aglow with vari-colored blooms offer an inviting walk to those who tote buckets and rigging to shore-lines, while the sweet scented pine covered woodland forest beckons to those who seek the shade. There's seclusion and peace amid water plants that dip their catkins into the surface, and quietude on mossy, fern-decked shores.

Winter winds hold no dread for those who bask in sheltered nooks along a frozen lake. The rumbling and cracking of the giant span give strength to those who sit and watch nature tussle with ice against the shore. Ever changing elements are but a pattern for man to follow as he too battles for existence in a troubled world. Yes—"goin' fishin'" means more than rod and line—it's the perfect tonic for mankind.

Conservation Conversation

*Before they have reached any final solution
To problems of water control and pollution,
As voices go higher and faces grow tauter,
There's going to be lots of dams over the water.*

—Gladys B. Cutler

OUTDOOR CALENDAR

Feb. 2—Ground-Hog Day
Feb. 9-17—(No show Sunday the 11th) Pennsylvania Sports and Outdoor Show, Farm Show Bldg., Harrisburg, Pa.
March 2-10—Philadelphia Show—Convention Hall
March 16-25—Allentown Sportsmen's Show
March 18-24—National Wildlife Week
April 23-30—Pittsburgh Sportsmen's Show

* * *

— At Philadelphia Natural History Museum —
Feb. 3—Nature Adventure for Youth, 10:30 a.m. Three films—Beaver Valley, Life Along the Waterways and Big White Water. Free.
Feb. 10—Nature Adventures for Youth, 10:30 a.m. Two films—Animals of the Farm and Woods. Free.
Feb. 17—Nature Adventures for Youth, 10:30 a.m. "Insect Societies"—closeups of living habits of ants, honeybees and termites. Free.
Feb. 24—Nature Adventures for Youth, 10:30 a.m. "Story of the Earth"—two films about prehistoric life. Free.

Tying Flies

With STUART DUFFIELD

Here's an all-season dry fly that will work from the opening day until early in the fall. It combines features found in two old favorites—the Dark Cahill and the Dark Hendrickson. I like to tie this on a number 14 hook but in warmer weather it's a good idea to have some No. 16's and possibly No. 18's in your fly box.

For the dressing:

Tail—red cock spade hackles

Body—gray fur from either muskrat or red fox

Wings—wood duck

Hackle—brown and blue dun mixed.

To facilitate the casting of this fly try a leader of the following dimensions. It's an easy tie to remember. All you have to do is to remember the number 30 and then step down each section by five inches.

Butt: 30" of .019; 25" of .015; 20" of .013; 15" of .011; 10" of .009; followed by aippet section of 18" of either .008 or .007.

You can readily make this a good wet fly leader by merely leaving off the tippet section. I work off this basic leader all season long. Carry additional coils of leader material with you and you can tailor your leader right on the stream. You will find the quickly-tapered leader will lay out a fly in as neat a manner as you would want.

To further exploit the potential of this comprehensive fly you may go to the nymph which is a close adaptation of the dry version. It would be dressed like this:

Tail—red or brown

Body—gray muskrat or the gray from the red fox

Hackle—gray (blue dun), either bearded or tied in one turn

Wing pad—brown hackle tip tied flat and covering the upper third of the fur body. Only tie in the section directly back of the eye of the hook.

To guarantee success with this nymph I would begin with a fine tipped leader with the terminal end measuring .006 and smaller. Cast slightly above the cross stream angle and let your nymph float naturally. As your nymph completes its swing down current slowly raise your rod tip and impart the slightest palsied motion to your hand. At the completion of the float leave your fly in the water a few seconds. At this point slowly release a little excess line held in your left hand. This will let your fly float unrestricted downstream a few feet. As you release your line lower rod tip. When the additional line is taut, again slowly raise rod tip. Do this several times until you are certain there is no fish following your nymph. At this point slowly retrieve the fly using the hand twist retrieve and again imparting just the slightest palsied motion to the rod.

This method will get fish if you will remember to fish your cast slowly and with care. Watch line where it joins your leader for any unusual movements. This could be a fish. Don't be impatient to cast as very few fish are caught with a fly in the air. Most fish will be taken near the end of the nymph's float while raising your rod tip.

Anglers who tie their own flies dislike the job of stripping peacock or chicken feathers. The stripped feathers form the bodies of dry flies. Feather stripping, however, need no longer be a chore. Try this: soak the feathers in hot liquid disinfectant bleach. The fuzz just fizzes away.

CHANGED ADDRESS? ? ? Promptly notify Pennsylvania Fish Commission both old and new address.



PERFECT BALANCE

A rock, located on the crest of North Mountain, near Deer Lake, Sullivan County, balances perfectly and precariously on a tiny pedestal. It has stood in this strange position for countless centuries. Barring an earthquake or an atomic blast, the rock may defy gravity until the end of time.

The rock probably weighs several tons and oddly, rests upon a narrow pillar of stone less than a foot in width. It can be teetered and tottered slightly, but human effort or that of nature fails to upset it. Folks in nearby Mawrglen village refer to it as "ticklish rock."

Fishermen bent on visiting Deer Lake, a superb pond for pickerel, can see this balancing rock by traveling a dirt road leading from Mawrglen to the North Mountain. Someone thoughtfully placed a marker along the wayside pointing to a woods trail leading to the unusual stone. The path is not a well traveled route, indicating few know or visit this unusual rock. It is one of Pennsylvania's natural oddities.

Folks who really love the outdoors have a keen anticipation of what may be done, what may be enjoyed and what may be learned.

The value of a day in the outdoors is what the next day's memory of it shall be.

The problems of conservation are changing so fast that some of them may become obsolete before they can cause any real trouble.

The Editor's Angle

Dear Sir:

Enclosed herewith is payment for a three-year renewal of our subscription to the PENNSYLVANIA ANGLER.

My family and I have enjoyed your fine publication over the years and we consider it the best fishing periodical available. The many excellent articles have assisted us (angling techniques, fly patterns, etc.) not only in the East but in our travels throughout the United States and Europe.

Being in the "catfish" section of Texas, we will have to rely on the ANGLER and other magazines to satisfy our trout fishing desires for the next few months. As you can see by our change of address, we have just left Colorado (having been stationed there for the past year). Even there—in what many consider a real fisherman's paradise—we found the ANGLER useful and many fellow anglers who enjoyed reading it.

Looking forward to a prompt renewal of our subscription, I remain,

Sincerely,
ROBERT W. STORM
Major, U. S. Army

We're delighted to hear from you, Major; hope we can continue to give you an angling assist.

* * *

Dear Sir:

Have just received my November, 1961, issue of the PENNSYLVANIA ANGLER; find you celebrating your 30th Anniversary! Congratulations! . . . for printing such a wonderful magazine and best wishes for years to come. I have been a subscriber for about 25 years, have enjoyed every copy.

I remember when it cost 50 cents a year and wondered how you did it. I have no old copies because I always pass it along to friends. Looking over the old covers, I well remember the August, 1934, copy with the starey-eyed bass.

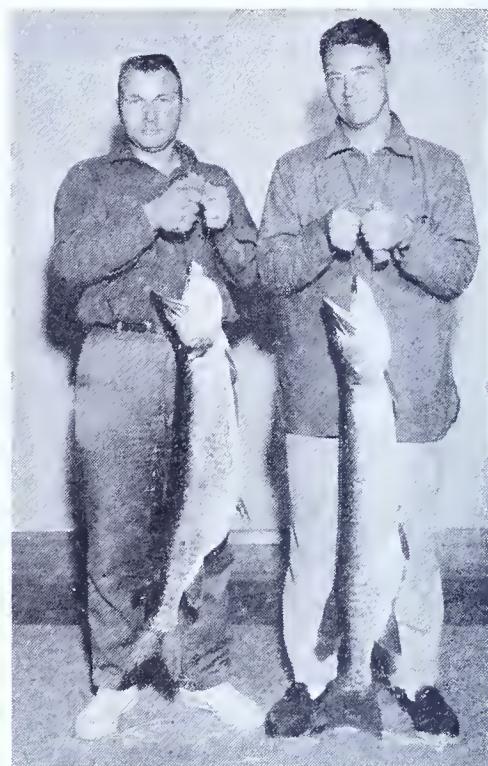
I am 66 years old and a fisherman; reading the ANGLER has helped me express views on many questions. The new subscription rate of \$2 is cheap for what I get from it. Keep up the fight for good fishing in Pennsylvania.

Louis J. Shamberger
Vandergrift, Pa.



HERE'S JOY!—No, no, here's Helen DiPaolo obviously happy because her brother, Perry "Butch" DiPaolo, hooked this 19-inch largemouth bass on last October 10 at Duman Dam. Butch was fishing with his grandfather, "Frantz" Blum, of Ebensburg, Pa.

Alfred W. Wagner, secretary, South Central Division, Penna. Federation of Sportsmen's Clubs, sent the photo.



HOW ABOUT THESE—Northern pike caught off Cascade Dock, Erie Bay, last season by Paul Weaver and Sam Travis, both of Erie. Weaver's fish is 41 inches long, 20 pounds; Travis's catch measured 29 inches, weighed 18 pounds.



PERKIOMEN CREEK MUSKY, 33½-inch, 9-lb. 4-oz. fish caught on night crawler by Bob Reinhardt on left. Fishing pal Sidney Blackwell on right helps hold.

Sponge Bait for Catfish

Cut a pink sponge into small pieces. Place in a fruit jar with dead minnows, pieces of fish or shrimp. Let RIPEN. The sponge pieces will absorb the fish oils, odor and will attract catfish. Sponge stays well on hook. When oil odors wash out, put on fresh piece of sponge.—*Irene Richwine*.

Salt Glands

The Fish and Wildlife Service recently supplied herring gulls and a black-backed gull to personnel of the Harvard Medical School for research purposes. The researchers are primarily interested in the salt glands which are very specialized glands located above the eyes of the seagull. These glands permit the gulls and others birds which have them to extract salt from salt water.

Common error made by fishermen—especially inexperienced fishermen—is using too large a hook. Many of us could profitably imitate the trout fisherman, who uses a very small hook (size 10, 12, or smaller) and easily holds fish of good size.

All too often the casual fisherman who's out to catch a mess of bluegills, or crappie, baits up a No. 1 or No. 1-0 hook, gets lots of nibbles, and then wonders why he doesn't catch any fish. The fact is that the bluegill, most other sunfish, and all but the larger crappie, have mouths so small they can't possibly take in the big hook.

A No. 4 hook is large enough and strong enough to hold almost any fish, and a size 6 or 8 is a lot better to use on pan fish.

It is fun to go fishing, and it's even more fun when you catch fish. Using a small hook may mean the difference between success and failure.

Tired of relying on pork and beans? Here's a recipe called "Trapper's Bean Soup," a favorite of Ed Saunier. Pour four cups water in saucepan with cover, add one medium sized potato, diced, one small onion cut up fine, one tablespoon bacon fat, one-half teaspoon salt. Boil until potato dissolves, then add a 15-oz. can of pork and beans and bring to a boil again for five minutes.



JAMES SULLIVAN, timekeeper at the Water Operations Division, Philadelphia, helped take this 31½-inch musky from station's intake screen, propped open business end of fish for Philadelphia Evening Bulletin photographer.

Big Musky on Travelogue

"Chance, plus a steel screen and a pump sucking water out of the Schuylkill has prevented some angler from doing what has never been done before . . . hooking a muskellunge within the limits of Philadelphia"—reports Joe Pancoast, outdoor editor, Philadelphia Evening and Sunday Bulletin. The big, 31½-inch musky, according to the story, was sucked into the intake screen of a Water Department pump at Belmont Pumping Station on West River Drive, Fairmount Park, near Columbia Avenue Bridge.

It's anyone's guess as to origin of the fish but it may have come from the Philadelphia Suburban Water Company's dam on Perkiomen Creek at Green Lane. As far as known, it is the only water holding muskies in the entire Schuylkill watershed. The Perkiomen joins the Schuylkill near Oaks, above Valley Forge.

It is further assumed the big musky went over the top of the 66-foot high dam at Green Lane, traveled down the Perkiomen to the Schuylkill, then over the Norristown and Flat Rock Dams before becoming trapped at the intake pump.

Dear Ye Ed:

Congratulations on the 30th Anniversary of the PENNSYLVANIA ANGLER. Alex, Charles, Richard, Fred, J. A. Barrett and G. W. F. . . . it was good to hear about all of you. And it was thoughtful of you to include the names of so many long-time contributors. I looked back at my records and find my first manuscript was published in 1940, something of mine has appeared in 150 subsequent issues. These include articles and stories; series of illustrated rhymes, short articles, quizzes, several poems and a number of "school pages." Best wishes for the next thirty years!

Carsten Ahrens
Pittsburgh, Pa.

Books that can be read in the water are now on sale. The most popular is entitled . . . "How to Learn to Swim."



Youth Outdoors

By MYRON SHOEMAKER

What's a river besides water?

It's a good question. In this day and age a most important question, perhaps far more important than most people realize.

The answer depends somewhat upon where the river is located, who wants to use it, who does use it, when they want to use it, and for what purpose.

In the strictest sense a river is the main bloodstream of a community or many communities. It is fed by many smaller streams that come tumbling down from mountains or flow slowly through meadows or wooded sections of the entire watershed.

To some people a river is a thing of mystery and beauty, something to wonder about and appreciate. To others it is something that has always been there and is never given a second thought until it becomes a raging torrent to destroy public or private property.

To some it is a place where recreation of all kinds may be enjoyed during spring, summer, fall or winter.

To some it is the home of fishes and all the different types of food fishes must have in order to survive. To others it is nothing more than a place to catch various kinds of live bait to angle in other distant rivers, lakes or ponds.

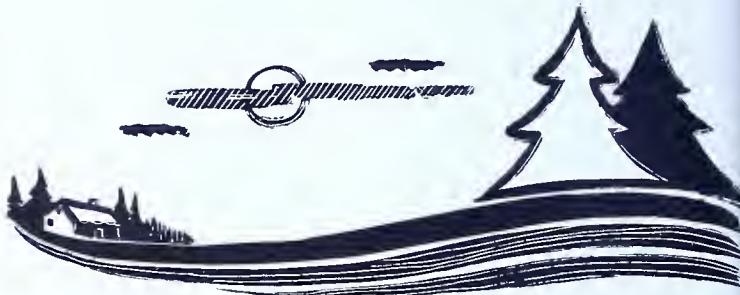
To some it is a place to build a home on the shore line in order to enjoy life and be able to fish, swim or participate in other kinds of recreation that only a river can supply.

To some it is a source of power for the generation of electricity to be distributed throughout a broad area to light homes, schools, business establishments and supply the necessary power for industry. To others it is the only source of furnishing a steady supply of water for domestic purposes regardless of its condition relative to cleanliness.

To some it is a challenge to be accepted to ride down its dangerous rapids or waterfalls to give life its fullest expression in the way of dangerous or joyful adventures.

To some, and to far too many, a river is nothing more than a convenient place to unload a cargo of human and industrial waste in order to be rid of it regardless of what use it may be to people downstream. It is little or nothing more than a huge garbage pail for too many people who dispose of their garbage and all other rubbish, for which they no longer have any use, give it to the river regardless of the damage inflicted.

Youngsters! This is your page. Ask all the questions you wish about the outdoors and Mr. Shoemaker, writer of this column, will answer you. Write letter or postcard to Myron Shoemaker, c/o PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.



To some it will never be anything but a place to carry away human and industrial waste, not until the youth of America rise in unison and demand rivers be used as God intended: for the general use and well-being of humanity in general instead of those who use it for their own selfish purposes regardless of the interest of others.

A river is one of God's greatest gifts to society, a living element pure in its own right but made unclean by the multiple forces of society, not by any right granted to them by any power, but a right they have taken into their own hands.

What is a river besides water? A river is just what God made it: a thing of wealth and beauty.

Let's try to keep it that way.

Things you may not know:

Some fishes, such as the bass and sunfish, all members of the sunfish family, build nests and protect them until the baby fish hatch.

Some fishes, such as the pickerel, muskellunge and northern pike, build no nests at all: they simply scatter their eggs anywhere they please and let nature take its course.

Some other fishes, such as the catfish, build nests, protect both the nest and their young until the young are able to care for themselves.

CLIP HERE FOR PENNSYLVANIA FISHES

Enclosed please find \$ Check; M. O.; Cash for:
copy(ies) of PENNSYLVANIA FISHES @ \$.25 per copy.

Forward to: (please print or type)

Name _____

Address _____

Town _____ Zone _____ State _____

Make check or money order payable to **PENNSYLVANIA FISH COMMISSION** Harrisburg, Pennsylvania

Cash sent at your own risk, stamps not acceptable

CLIP HERE FOR PENNSYLVANIA ANGLER

Enclosed please find \$ Check; M. O.; Cash for:
year(s) subscription to the ANGLER @ \$2 per year
years—\$5.

Forward to: (please print or type)

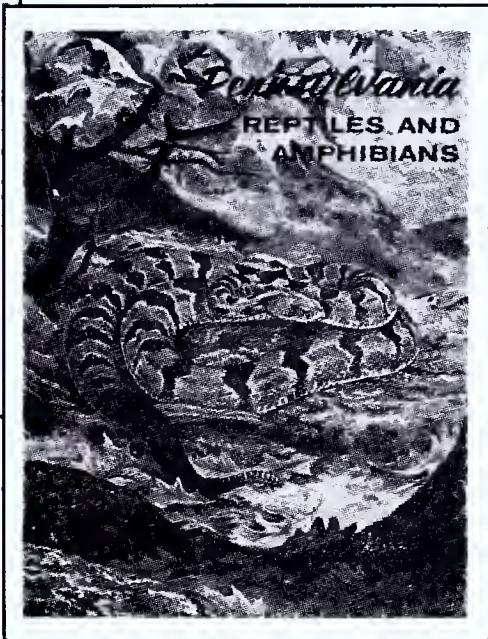
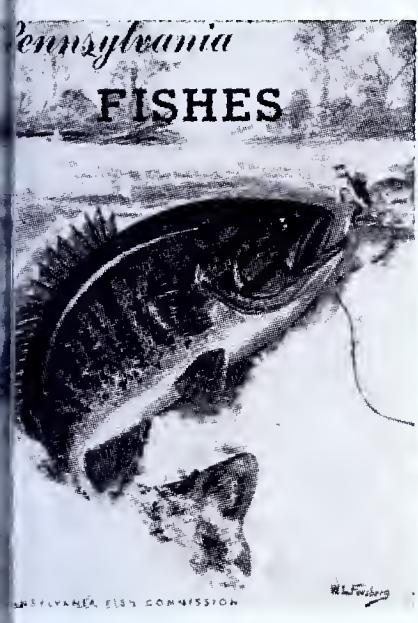
Name _____

Address _____

Town _____ Zone _____ State _____

Indicate County Choice

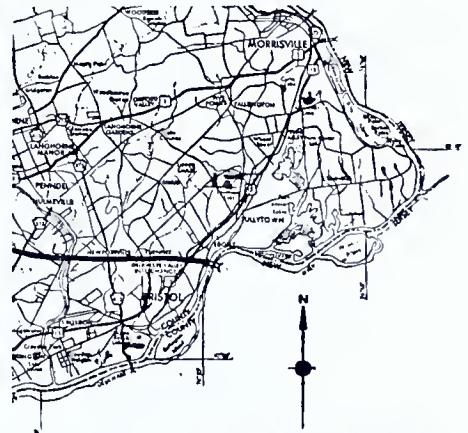
Free Fishing Map Here



BOTH FOR 25c

Plus 4% Pa.
Sales Tax

**Free Choice
of any
Pennsylvania
County-Waters
Highway Map**



PENNSYLVANIA FISH COMMISSION
WATERS-HIGHWAY MAP
COUNTIES OF

BUCKS—MONTGOMERY

Prepared in cooperation with the
PENNSYLVANIA DEPARTMENT OF HIGHWAYS
COMMONWEALTH OF PENNSYLVANIA

Clip Coupon

**With every new or renewed
subscription to the
Pennsylvania Angler**



P 38.31
1.6
6.

PENNSYLVANIA ANGLER



PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION

March 1962

Fisherman's Paradise

Developed 1934 — Modified 1962

By ALBERT S. HAZZARD

Assistant Director
Pennsylvania Fish Commission

T

TO MEET rising costs of operations in the face of declining fishing license revenue, reduction in expense with the least harm to the fishermen has become imperative. In reviewing all of the operations of the Fish Commission the costs and benefits from Fisherman's Paradise in Centre County were carefully scrutinized.

In 1961 a total of 16,028 individual fishermen, including 4,077 children who were not required to purchase licenses, used the project. The total cost for operation of Fisherman's Paradise was \$55,172. Of this amount approximately \$50,000 was for rearing the fish stocked; the balance was for registration of fishermen, fish food to hold the fish in the area and for maintenance of the grounds and the stream.

Comparing the total number of licenses sold with the number of licensed fishermen using the project revealed that the Paradise was fished by about two per cent of the estimated licensed fishermen in Pennsylvania. That this two per cent was important, especially to the economy of the area, is recognized. Although the majority came from nearby counties, all but one county in the state were represented and 528 fishermen from out of the state and eight from foreign countries visited the project last year. A way to operate the Paradise at lower cost was necessary.

Pleas came from a delegation of Centre County interests, a lengthy petition from Cambria County and from many letters received by the Commission to operate the Paradise on a "fish-for-fun" basis. Since the major cost had been stocking and since this could be drastically reduced under a no-kill policy this seemed to be the ideal solution. Accordingly, at its January meeting the Fish Commission adopted the following regulations for the Fisherman's Paradise beginning with the opening of the regular trout season on April 14, 1962:

1. No trout may be killed or had in possession.
2. Fishing may be done only with artificial flies and streamers of construction materials limited to feathers, fur, hair, tinsel or fibre, except that bodies of flies or streamers may be of plastic, cork or rubber. Weight or sinkers up to the equivalent of 2 BB shot may be built into the fly or streamer or affixed to the leader. Other lures commonly described as spinners, spoons or plugs made of metal, wood, plastic or rubber, singly or in combination, are prohibited.
3. Fishing may be done only with conventional fly-fishing tackle. Any method of angling whereby the fly or streamer is cast directly from the reel is prohibited. Barbless hooks will not be required under the new regulations. (This was a safety measure for

fishermen during previous operation.)

4. Possession of any bait or lures other than artificial flies and streamers is prohibited.
5. Fishing hours will be one-half hour before sunrise until one-half hour after sunset.
6. No wading will be permitted within the Fisherman's Paradise area. (This restriction is necessary because water which flows from the area is used in hatchery ponds.)
7. In the area downstream from the footbridge at the Administration Building to the lower end of the Paradise property, fishing will be permitted only on the east side of the stream. (This restriction is necessary to avoid interference with operation of the ponds located close to the west side of the stream.)

The advantages of the new regulations to the angler who does not need to kill trout to enjoy fishing are readily apparent. On and after April 14, 1962, he may fish the Paradise any day in the year with a minimum of restrictions.

As on all other fly-fishing waters he cannot use natural bait nor, for practical law enforcement, can he have such bait in his possession on the stream. Since all fish caught must be returned to the water with a minimum of injury, fishing is restricted to artificial flies which kill less than three per cent of the fish hooked in contrast to an average of 37 per cent when natural bait is employed.

Fishermen will not need to use barbless hooks which are difficult and expensive to purchase or to damage a favorite fly by bending down the barb. Although greater total use of the Paradise is possible under the relaxed rules and longer season, the heavy concentrations of fishermen of the past are not expected. The old barbless hook rule was more to protect the fisherman than the fish. Experiments have shown that barbed hooks do little if any more damage to the fish than barbless but the latter are much easier to remove from a finger or ear.

Since few fish will be stocked here in the future—the number needed will be determined by a stream census with the electric shocker at intervals during the year—the fish caught should be mostly wild in appearance and fighting ability. Most of the large trout which were being held for stocking here will be distributed to the larger, heavily fished waters throughout the state this year. Under the economy program they will not be available in the future. With the expected improvement in angling and with the greatly reduced cost of operation the motto which Pennsylvania made famous "If you would catch more, kill less"—should be exemplified by Fisherman's Paradise in the future.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director
DR. ALBERT S. HAZZARD
Asst. Director
WARREN W. SINGER
Assistant to Executive Director
PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY _____ Chief

Fish Culture

HOWARD L. FOX _____ Superintendent

Real Estate and Engineering

CYRIL G. REGAN _____ Chief
EDWARD MILLER _____ Asst. Chief

Law Enforcement

WILLIAM W. BRITTON _____ Chief

Conservation Education-Public Relations

RUSSELL S. ORR _____ Chief



NORTHWEST REGION

S. CARLYLE SHELDON _____ Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES _____ Warden Supervisor
R. D. 2, Somerset, Pa. _____ Phone: 6913
DeWAYNE CAMPBELL _____ Fishery Manager
451 Cannell Dr., Somerset, Pa. _____ Phone: 5837

NORTHEAST REGION

H. CLAIR FLEEGER _____ Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724
TERRY RADER _____ Fishery Manager
R. D. 3, Honesdale, Pa. _____ Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN _____ Warden Supervisor
1130 Ruxton Rd., York, Pa. _____ Phone: 2-3474
ROBERT BIELO _____ Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK _____ Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL _____ Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN _____ Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES _____ Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President	Hawley
MAYNARD BOGART, Vice President	Danville
JOSEPH M. CRITCHFIELD	Confluence
WALLACE C. DEAN	Meadville
JOHN W. GRENOBLE	Carlisle
ALBERT R. HINKLE, JR.	Clearfield
R. STANLEY SMITH	Waynesburg
RAYMOND M. WILLIAMS	East Bangor



MARCH, 1962

VOL. 31, NO. 3

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 THE JOHNSTOWN FLOOD—Wilbert N. Savage
- 6 SUSQUEHANNA FISHWAYS STUDY NEARS COMPLETION—Russell S. Orr, Chief, Conservation-Education Division, Pennsylvania Fish Commission
- 8 DISTINGUISHING THE CATFISHES OF PENNSYLVANIA—Keen Buss and Jack Miller, Fishery Biologists, Pennsylvania Fish Commission
- 10 BOATING
- 12 THE TROUT STOCKING STORY IN PENNSYLVANIA
- 14 NATIONAL WILDLIFE WEEK—MARCH 18-24, 1962
- 16 SUCKER TECHNIQUES—Larry Kopp
- 16 TACKLE TIPS—Don Shiner
- 18 NOTES FROM THE STREAMS
- 21 CATFISH CAPER—Hank Rosen
- 21 TROUT WATERS CLOSED MIDNIGHT, MARCH 14, TO 5 A.M., APRIL 14, 1962
- 22 TYING FLIES—Albert G. Shimmel
- 22 BIOLOGY BRIEFS—Keen Buss
- 23 ALONG THE NATURE TRAIL—Carsten Ahrens
- 24 YOUTH OUTDOORS—Myron E. Shoemaker

Cover—SPRING! Along the Trout Stocking Trail!

"Man With the Net" is Ken Baird, driver for Pennsylvania Fish Commission's Big Tanker Fleet

Back Cover—SUCKER SUCCESS

Photos by Johnny Nicklas—Chief Photographer, Pennsylvania Fish Commission

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa.

NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

Spring and floods are coincidental, often the results of poor soil conservation practices. Many folks can still remember Pennsylvania's most disastrous flood of them all . . .



AFTER FLOODWATERS SUBSIDED, damages estimated at \$10,000,000 hardly included the loss of more than 2,000 human lives in Pennsylvania's greatest flood disaster.

the JOHNSTOWN FLOOD

By WILBERT N. SAVAGE

THE time: Dawn, May 31, 1889. The place: Johnstown, Pa. During the night a cloudburst had turned the region into a sodden bog with five inches of rain. But in spite of the splashing deluge, dark clouds above southwestern Cambria County were not yet empty: moderate rain set in in place of the earlier downpour. Foul weather continued past noon. Fifteen miles above Johnstown the breast of a time-weakened dam on the South Fork of the Conemaugh shuddered as its contents swelled beyond 600,000,000 cubic feet of water. The hour of one of the world's worst inland flood disasters was close at hand.

At that time Johnstown, justly proud of its new steel mills, was a thriving city of 30,000. It was situated on the flats of the Conemaugh River, a turbulent stream that raced swiftly down a narrow gorge until it widened out to join Stonycreek River. In the narrow valley, land was precious. Some ground and even new streets had been gained by filling in and crowding the streams into even narrower channels. This practice was carried to a dangerous extreme and had to be stopped by city ordinance which set the minimum width of Stonycreek at 175 feet; the Little Conemaugh at 110 feet; and the "Conemaugh proper" at 200 feet. Now a tree-top-high

wall of water—frightful in its every terrifying dimension—soon was to descend upon those pitifully inadequate passageways!

Almost everyone in Johnstown knew something of the history of South Fork Dam. It had been built in 1852 by Gen. J. K. Moorhead and Judge H. B. Packer—a massive earthwork structure 90 feet high, 380 feet thick at the base, and nearly a thousand feet long. At normal water level, with depths up to 100 feet, the dam held about 480,000,000 cubic feet of water and had been constructed solely to fill the need for a storage reservoir serving the Pennsylvania Canal—an important commercial route to the West until railroads came along with their crushing competitive impact. In 1857 the canal was abandoned, a sure sign of doom for the reservoir's original purpose. Soon, it started to show signs of deterioration, and leaks pulled the water level to a sorry state of shallow stagnation.

In 1862 a rupture in the dam caused moderate flooding in the lower part of Johnstown. But the reservoir happened to be in a low-water state and damage was negligible. For years thereafter the dam was "just a neglected and sometimes smelly pond surrounded by mud and filled with unsightly waterweeds. . . ."

Then in 1879 a startling rumor buzzed through Johnstown. Someone had bought the dam for the give-away price of \$2,000 (original cost: \$166,000). The plans he had tucked away were fabulous. Rumor promptly became fact. This gentleman organized a local hunting and fishing club, and membership listings bore names of the state's wealthiest. At a pace neither exacting nor slow enough to be efficient, the dam was repaired in what amounted to little more than a few magic winks. Materials used: earth, stone, and straw! The contractor who handled the hurry-up project collected \$17,000 for the job and hastily withdrew. But all seemed well with the "luxury lake for the elite. . . ." The water-level started to climb satisfactorily and no leaks appeared. The breast of the dam was 35 feet wide at the top and appeared massive enough. Certainly no one remotely suspected the stunning disaster that was poised just a short decade away!

In a little while a three-story clubhouse mushroomed by the lake, boasting accommodations for 200. Cottages also popped up like dandelions. The dam, fitted with a screened spillway, spread beyond the 400-acre mark, leaving 70 acres for buildings and a small hunting area. The time soon arrived when more than fifty canoes, rowboats and sailboats floated peacefully on the mountain-locked body of water. Two steam yachts were added to unmistakably establish the real caliber of the club. There was a fine boathouse too, and plenty of fences to keep out poachers. The lake was heavily stocked with fish and the land with game.

Indeed, now, with the awful tragedy only minutes away, Johnstowners were sublimely unalarmed and unsuspecting!

Engineers had long thought the dam unsafe, but their opinions were "voices in the wilderness." Lurking danger somehow seemed to be buried in the bubbling

enthusiasm of the distinguished club coterie. As late as the day before the flood occurred, workmen cleaning the fish screens of floating rubbish reported jets of water squirting out 30 feet from the lower face of the dam.

At least facts had to be met; if the spillway screens could be kept free of debris, pressure on the breast would measurably be reduced. A young engineer on the job staggered under the immediacy of the awesome threat and the responsibility it entailed. It was in early March of that fateful year when, seeking his first job, he had landed the title of "Resident Engineer" for the hunting and fishing club. He of course had no way of knowing he'd have to face the present situation, and he felt a bit squeamish.

After a sleepless night listening to the cloudburst, at daybreak, he ordered the fish screens removed from the spillway; no risk of clogging could be taken. Orders also were given to briskly fight any sign of weak spots developing at the top of the dam.

Workmen found bolts holding the screens rusted solidly, and they lacked proper tools with which to force them loose. The engineer now could scarcely believe his own calculations: the dam was rising at the rate of a foot an hour! An order was issued to use horses to yank out the entire screen assemblies. Then he mounted a horse and dashed to a point where he could check the streams that fed the dam. He felt a mixed twinge of panic and despair at what he saw: the creeks, as he feared, had turned into raging rivers!

He raced back to the spillway to learn of another sickening failure. The horses had been hitched by rope to the screens and teamsters had carefully urged the



JOHNSTOWN FROM THE AIR today. Valley varies from 300 to 2,500 feet in width. High concrete levee system is visible in center foreground extending for more than 8 miles of waterway.

animals to use every ounce of strength in their bodies. They dug in and pulled. The rope had twanged taut—and snapped. Bleakly facing the realization that it was futile to try further to remove the screens, the willing men offered to keep trying anyway.

Seconds grew into minutes, minutes into hours. The day wore on. A hopeful attempt to dig a new spillway ended in dismal failure when the work crew struck solid rock at a depth of only 14 inches. The engineer knew now that the dam soon would go. At a headlong gait he rode two miles down the valley to the town of South Fork.

"Get out—get out, all of you!" he yelled as he raced along the unpaved streets.

When someone asked why, he shouted, "You fools, the dam is going to break!"

Knowing his engineering capabilities, the town's residents scrambled by foot, by wagon and horseback to higher ground. A handful of the curious, charmed by the very peril that hung above them, stayed in the town and were lost.

He rode on to the telegraph office (there were no telephones in the area at that time) and sent messages to the down-valley towns, including Johnstown. But most of the wires were down and—what a quirk of fate!—only fragments of the messages succeeded in getting through, with no identification of the authority who sent them. The word that was passed along, he later learned, only had the effect of stirring the mass murmur: "*There's that rumor again*"—and by unspeakable misfortune this warning did sound exactly like every other false report that had trickled down from the hills. Only a few individuals, described as nervous rather than wise, heeded the message and sought high zones of safety.

He returned to the dam and saw the water tearing brown earth from the top of the breast. Soon the foamy, muddy flow had cut down to the masonry. There seemed to be a virtual shaking of the earth at a point where the careless repair work had been done ten years earlier. Then . . .

Someone shouted, "Look—look, she's going!"

Abruptly a top-to-bottom section of stonework catapulted straight out. A snaky furrow writhed into the lake—a great moving notch of suction that tore at the shattered edges of the ragged break. Then there was a sound like an explosion as two massive wings of stone and shale swung outward and set free a hideous brown body consisting of twenty million tons of swirling water!

He stood aghast at what he saw, unbelieving, utterly paralyzed. Yet, in a dazed kind of way, he knew it had happened—*the dam had broke!*

In seconds the gigantic mountain of water had started to roll boulders and shave trees of all sizes from the steep slopes rising on either side of the gorge-like valley. Several workmen and spectators, standing too close to the crumbling breach, were sucked down and never seen again. The yawning break spread to a final width of 429 feet, allowing the whole lake to move

forward in one quaking plunge. The roar was deafening; the scene too appalling to describe.

The last of South Fork's fleeing stragglers crossed the town's iron bridge just in time. The towering wall of water surged down the valley to thrust it skyward like a matchstick, then mix with the twisted framework a collection of crushed barns, homes, mills and stores—all studded with careening timber, milk wagons, dog kennels, buggies, sleds, hen coops, farm machinery, and merchandise of every description.

One curve in the South Fork was so extreme that it carried the river on a two-mile journey around a narrow, rocky "hogback." The flood leaped the ridge, which had a straight-through thickness of only about 100 feet, as if in eager haste to be on its murderous way, leaving denuded, uprooted trees in matted deposits of reckless confusion as much as 125 feet above the river bed! Within minutes the flood then hit forty houses at Mineral Point (five miles below the dam), and they were gone "like a pinch of snuff whisked away by a gale. . . ." Almost every living thing in Mineral Point was drowned. Not a building was left standing—and still the liquid machine of incredible destruction swept on to wreak savage vengeance and death in Conemaugh, East Conemaugh, and Woodvale.

In East Conemaugh the thundering water used buildings and heavy timbers as battering rams to cave in the roundhouse. Thirty-three huge locomotives were lifted up and carried away like small pebbles in a rain-washed roadside gully.

Johnstown—inescapable target that it was!—came next. Many people there saw the water bearing down on the doomed city; many did not. Passengers in standing railway coaches fought their way out and in frenzied terror tried to win the race to higher ground. Some, particularly the young and nimble, made it. One engineer, whistle screaming, opened his throttle and tried to outrun the great belly of onrushing water—and failed. And a self-sacrificing train crew took time to cut loose a string of passenger cars on a steep grade, hoping to gain time that might allow for a hair's-breadth escape. But the speed of the water had been underestimated and it overtook and engulfed the cars.

It was now past 4 p.m., and the flood crest had started to pour into the very heart of the city, reaching speeds of over 60 miles an hour. From the dam to Johnstown the water had been accelerated by a 450-foot drop, giving it an overwhelming momentum that challenged all human calculations!

Homes, factories, mills, well-built places of business were buoyed up like bobbing corks. Doors, roofs, porches were ripped off and spewed in every direction. The sides of large homes were bashed in to admit the terrifying destroyer. Livestock and people alike were alternately wedged and smashed, squeezed and battered; sometimes buried beneath nearly forty feet of water, sometimes launched into the air by some violently see-sawing object.

At the lower end of the city, stone arches supporting the Pennsylvania Railroad bridge stood firm to form

a backstop for the heavily laden waters, and here a maelstrom formed to blend together an assortment of wretched debris reaching depths of 50 feet. Churches, schools, homes, smokestacks, and uncounted other structures rammed into the crazily spinning mass, some on fire, some ridden by bewildered, bedraggled people. Steam still popped from sizzling boilers, while deep down stones, bricks, railroad tracks, pig iron, heavy parts of rolling mills, and hundreds of other items grated together like the teeth of some tormenting monster sent up from the core of the earth.

Fate, bold and shameless, kept her rendezvous with June 1, and dawn spread its bleak light across the countryside to reveal mangled waste and suffering and stark horror too vast to compute or comprehend. The water had receded, "but not a street was left passable for a rig, and few for a horse. . . ." Railway cars stood on end here and there, some leaning against the ruins of once-sturdy buildings. Tree trunks had completely pierced homes; a locomotive lay on its back, like a dead beetle. A cow had miraculously escaped and was calmly chewing her cud on the threshing floor of a battered barn; a horse stood on a flat roof twenty feet above the ground, unhurt and whinnying to be fed. Quiet bodies of man and beast were scattered everywhere in the senseless scene of ruin and distress.

Dynamite boomed as it started to blast free some thirty acres of tangled wreckage at the PRR bridge; the army and national guard arrived to maintain order and guard against looting. Undertakers mingled with survivors; clean-up squads started to form; health officers began to arrive; doctors and nurses moved silently through the silt-covered debris. Supplies and temporary shelters started to come in from neighboring towns. Area homes not in the flood's path were flung open to the distraught and penniless victims. Fraternal organizations sent cash, food, clothing, medicine, furniture. The goodness and concern of fellow men gave nourishment to the natural resolute courage of the survivors, and soon manifestations of determination to renew and rebuild were abundantly present.

The flood had claimed more than 2,200 lives. At one point, five city blocks were completely filled with rubbish and bodies. A total of two thousand men worked to clean up that section alone, using hundreds of dollars worth of lime and disinfectants. In all, some six thousand men worked more than six weeks in the city—burning, burying, probing, hauling, salvaging. Although eight morgues had been set up, 800 victims were never identified. Indeed, some bodies were not found until years later—one as late as 1901. Twenty-dollar rewards were posted for the discovery of victims' bodies!

National and world concern over the unbelievable disaster offered many a heartwarming aside to the grim situation. Contributions from cities and countries near and far totaled over \$3,000,000, of which about \$2,000,000 in cash went directly to the flood sufferers. Buffalo Bill, with his Wild West Show in Paris at the time, gave a benefit performance and mailed the generous proceeds to Johnstown. Gifts came from England, Ger-

many, Turkey, Persia, Italy, Mexico, and elsewhere. There wasn't a person left in Johnstown who had not lost a mother or father, sister or brother, or other close kin! Hundreds of children had perished. Somehow, in summing up, the \$10,000,000 property damage visibly became a phase of diminished consequence—even to recording historians.

* * *

In 1936 swollen rivers caused a second tremendously damaging flood in the city of Johnstown, when eight lives were lost. This repeat of calamity, property loss and the threat it held over the future prompted clamor for an extensive flood control project for the area. The plan gained approval and five years later the job was completed at a cost of nearly nine million dollars. The beds of the rivers were drastically widened and deepened. The total concrete used in levees and other protective arrangements would have been enough to build a 20-foot highway 63 miles long.

Johnstown has been dry ever since!



INCLINED PLANE, built in 1891, two years after the flood at Johnstown. The incline, one of the steepest, passenger-carrying inclines in the world, ended 70 years of operation in February. During the 1936 flood the incline worked overtime to haul some 4,000 fleeing individuals to higher ground. It normally carried commuters and tourists from Johnstown up a 71 per cent grade to Westmont borough, 502 feet above, and back down again. In all its history, this unique haulage system was marred by only one fatality. Changing power sources forced its closing.

SUSQUEHANNA FISHWAYS STUDY NEARS COMPLETION

By **RUSSELL S. ORR**, Chief
Conservation-Education Division
Pennsylvania Fish Commission

THE engineering and biological study which is being made in preparation for the design of workable fishways for the dams on the lower Susquehanna River is near-

ing completion. The survey team, Milo C. Bell, of Washington, and Harlan Holmes, of Oregon, was engaged more than a year ago to conduct the study.

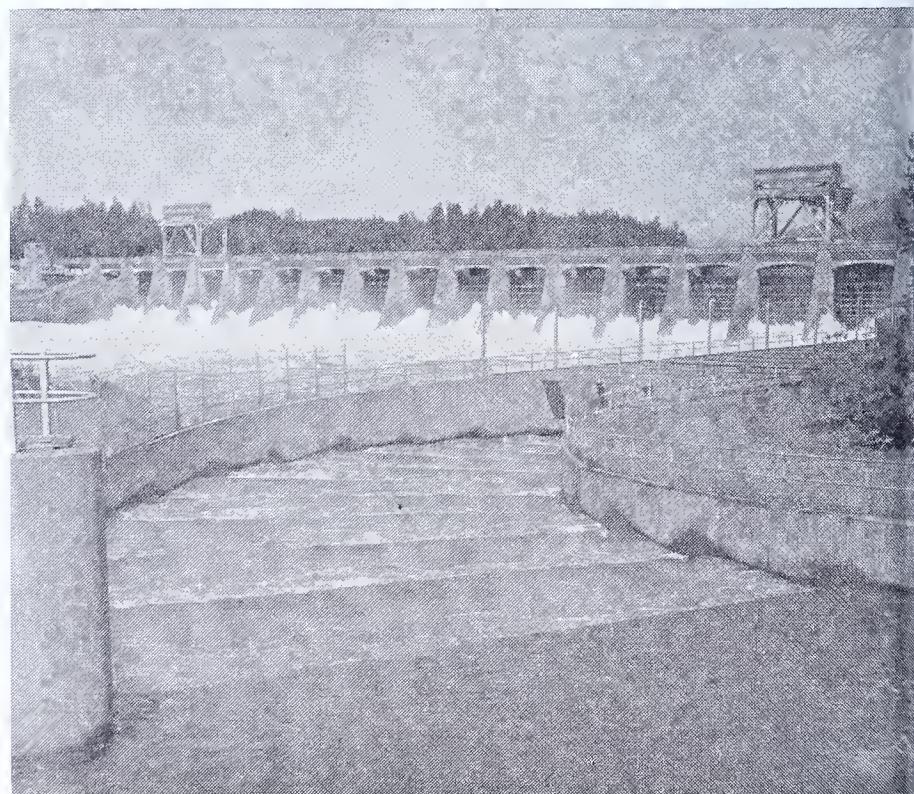
Original plans called for the installation of experimental fishways and other equipment at the Susquehanna River dams. It was found that practically unlimited experimental facilities were available at Bonneville Dam on the Columbia River between Oregon and Washington. By utilizing these facilities, many of which could be altered quickly and economically, the survey work has been greatly expedited.

The General Assembly authorized the expenditure of up to \$75,000 for the survey. However, Bell and Holmes, who are paid on a per diem and actual expense basis, have expended less than \$22,000 of the funds to date.

In their recent reports, both consultants have indicated that they are approaching finalization of their work. According to both the engineer and the biologist,

THE OLD . . . fishway built into Holtwood Dam on the Susquehanna during early part of century. Anglers, viewing the structure after completion, declared only monkeys could climb it. It never worked.

THE NEW . . . fishway at Bradford Island, Bonneville Dam on the Columbia River, basis of studies on shad migrations by Milo C. Bell and Harlan Holmes. Rough draft of new, modern fishway adaptations to Susquehanna dams are now on drawing boards.



study of data gathered during the 1961 shad migration indicates that further study of the eccentricities of this species will be extremely necessary and important for the completion of the fishway designs.

"Data to date indicates that the shad are reluctant to use a submerged orifice," said Bell. "If the shad prefer surface passage into the fishway systems, it will be vitally important to know this in order to design workable fishways."

Biologist Holmes, in analyzing the data, also has found that there are many biological factors pertaining to shad which will have definite effect upon the success or failure of the fishways.

"We have become particularly impressed by the determination of shad to move in schools," said Holmes. "When an individual shad gets separated from the school he reacts excitedly and makes an effort to rejoin the group. This may be a possible explanation of failure to put shad through some fishways. Our studies have shown that shad have refused to use fishways where entrance was a restricted port through which only a few fish could pass at a time. It may also explain difficulties of moving shad by truck. It would seem that any possible success in transporting shad by truck would be controlled by the ability to hold them at their destination until they have formed a school."

Bell emphasized the importance of the examination of one more shad run at Bonneville. He said such data compiled in the additional test would make it possible to make a firm recommendation regarding the fishway entrances.

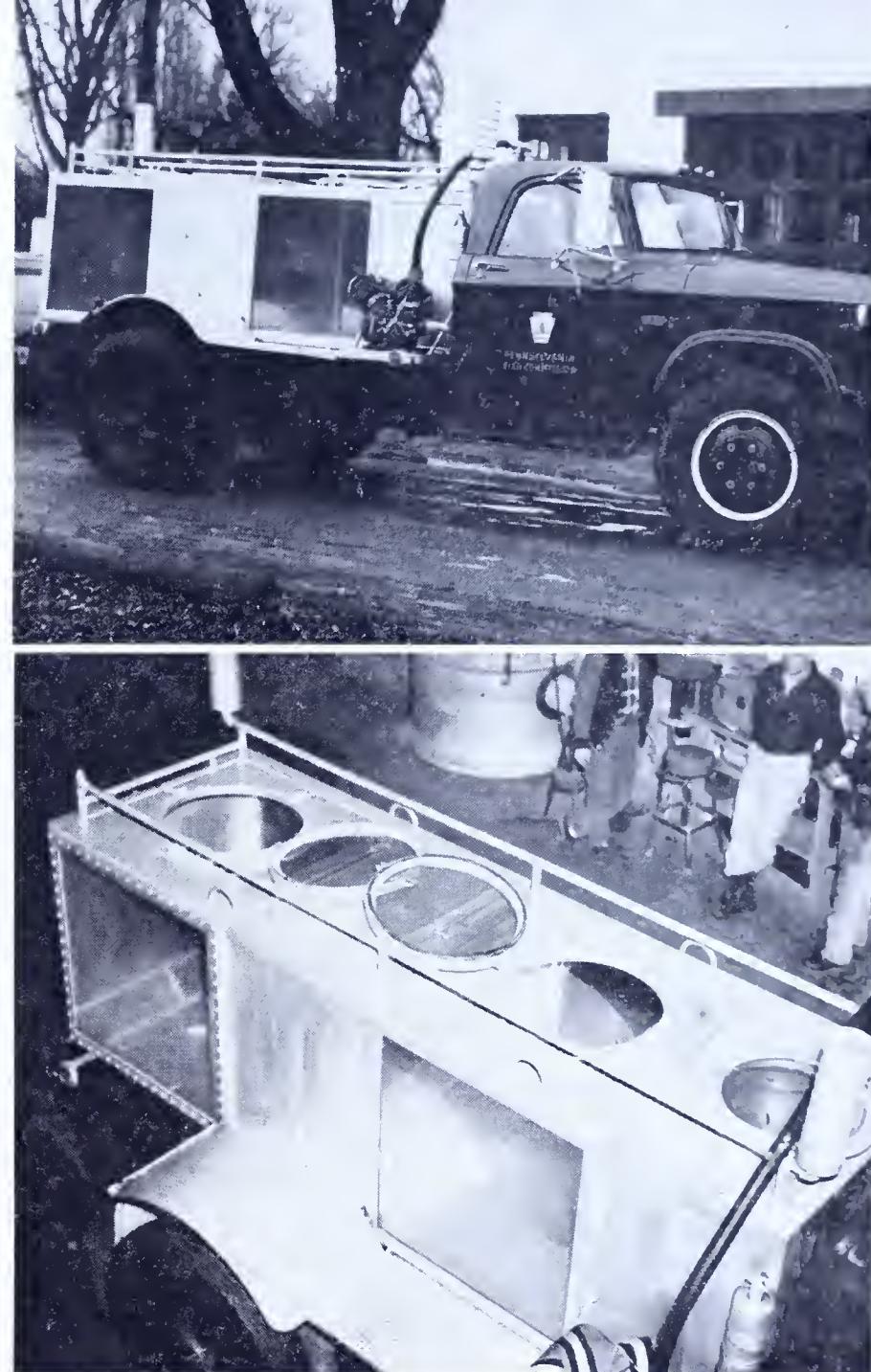
"Whether or not submerged orifices are used would not affect the cost of the system to any extent, but would firm up our views as to the type of entrance and regulating system which would be the most practical to recommend," said Bell.

The fishway consultants have made it clear that they still are open-minded as to the specific types of fishways they will recommend. Preliminary experiments, according to Holmes, have indicated that transportation around the dams by truck probably would not be a permanent plan. However, he also said that this system might well be desirable for initial stockings to build up the runs at the Conowingo Dam.

Bell advised that his initial layout for Conowingo will be altered. The changes will be necessary because of planned alterations to the dam by the power company. He indicated, however, that these changes would have little, if any, effect on the cost of fishway construction.

In his report the engineer said strong consideration is being given to the canal system, as well as other types of fishways. He pointed out the extreme importance of planning any fishway so that fish would enter the fishway access area rather than the power plant spillway system.

Bell and Holmes have scheduled delivery of a rough draft, which would contain all of the essential plans, for April 30, 1962. They will be prepared to submit a final report August 1.



FISH UNDER GLASS

Pennsylvania anglers may see this new experimental glass unit during the Pennsylvania Fish Commission's spring trout stocking program. It consists of two compartments, 4' 3" x 4' 4"; one ice compartment, 1' 6" x 3' 4" x 4'; one aeration compartment, 2' x 3' 4" x 3' 6". Capacity is 134 cubic feet of water or 1,002 gallons, equipped with two centrifugal gasoline driven pumps, size one and one-half inches, capacity 4,000 gallons per hour with a venturi in conjunction with the pump for better aeration.

So far, this unit has been used only in the transportation of warm-water fish to stocking points but it is planned for use in trout distribution to determine the extent of its usefulness from an economical factor. An increase in the poundage per load over the old type unit is anticipated. The Engineering Division of the Commission is now at work constructing a similar type unit with advance features.

Distinguishing the Catfishes of Pennsylvania

(Family—*Ictaluridae*)

By

**KEEN BUSS and JACK MILLER
Fishery Biologists
Benner Spring Fish Research Station
Pennsylvania Fish Commission**



THE catfish family is composed of rather distinct scaleless fishes with a spiny ray in the dorsal fin and a spine in each pectoral fin. Another unique character is the whisker-like barbels on the chin. The catfishes, like the trout, have a fleshy adipose fin.

This bewhiskered family of fishes can be divided into three groups. Anglers are best acquainted with the channel and white catfishes and the brown, yellow and black bullheads. Also important to fishermen, but only as a baitfish, are the stonecats and madtoms. The madtoms, often mistakenly called stonecats, rarely exceed 3 to 4 inches while the true stonecats rarely exceed 6 to 8 inches.

Madtoms and stonecats can be distinguished from the young of larger catfishes by the adipose fin which is free in the larger catfishes and attached to the back over its entire length in the little catfishes.

The catfishes spawn in the spring at varying times depending on the species. Channel catfish prefer to spawn in obscure places such as overhanging banks or muskrat holes while the bullheads will spawn in saucer-shaped nests in the mud. The madtoms spawn under rocks in streams. The nest and young are guarded by the parent for a short length of time. Catfishes do well in either clean or muddy streams.

Catfish are usually caught on natural bait such as worms or minnows.

The brown bullhead (*Ictalurus nebulosus*) is very common throughout Pennsylvania. The color is usually brown varying from olive green to a dark brown with more or less mottled sides. Maximum length is about 14 inches.

The black bullhead (*Ictalurus melas*) does not grow as large as the brown bullhead but has a stouter body. The body color ranges from brown to black and the sides are not mottled. Its original range in Pennsylvania was in western Pennsylvania rather than in the Atlantic drainage. Maximum length is about 12 inches.

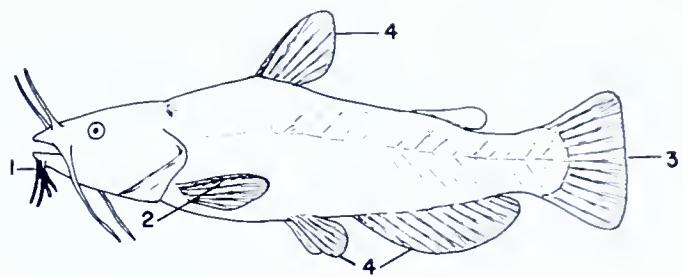
The yellow bullhead (*Ictalurus natalis*) is a short, heavy fish with a yellowish to brown body and usually a yellow belly. It is widespread in Pennsylvania and grows to a maximum length of 16 inches.

The channel catfish (*Ictalurus punctatus*) is one of the larger catfish. It has a slender body with a comparatively small head and a mouth with very long barbels. The body is usually a bluish olive color and grades to a silvery gray on the sides. All are spotted to some extent except adult males. Maximum weight is about 25 pounds.

The white catfish (*Ictalurus catus*) is a bluish olive color above grading to silvery on the sides. The body is stout and the head is broad. It is native to the rivers in the Atlantic drainage. Maximum length is about 24 inches.

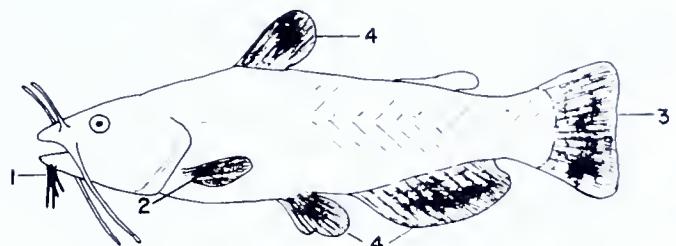
Brown Bullhead

1. Chin barbels gray to black
2. Pectoral spine with heavy barbs
3. Caudal fin square
4. Fin membranes not jet black



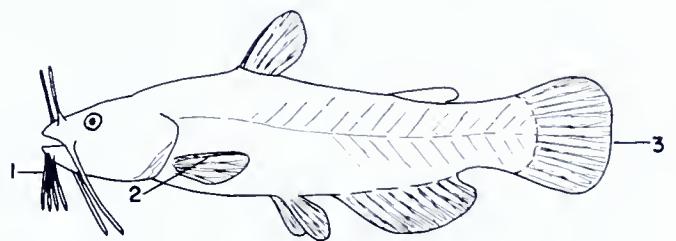
Black Bullhead

1. Chin barbels usually black
2. Pectoral spine with weak barbs
3. Caudal fin square
4. Fin membranes jet black



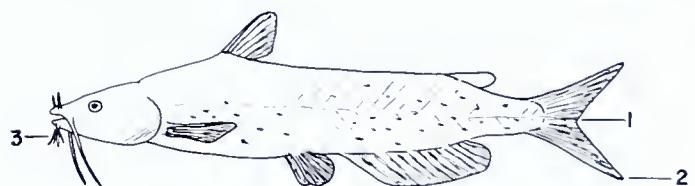
Yellow Bullhead

1. Chin barbels whitish
2. Pectoral spine with no barbs
3. Caudal fin rounded



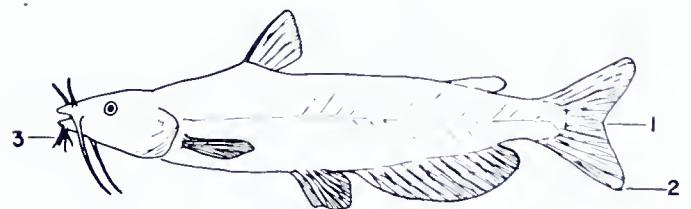
Channel Catfish

1. Caudal fin heavily forked
2. Lobes of caudal fin pointed
3. Chin barbels black



White Catfish

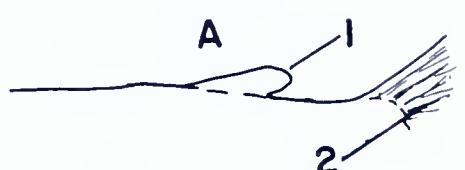
1. Caudal fin moderately forked
2. Lobes of caudal fin rounded
3. Chin barbels white



Distinguishing Bullheads and Catfish from Madtoms and Stonecat

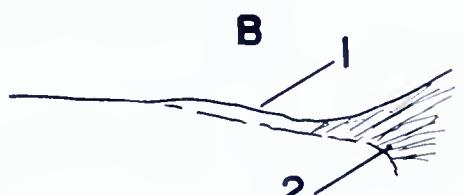
A. Bullheads and Catfish

1. Adipose fin not attached to caudal fin
2. Caudal fin



B. Madtoms and Stonecat

1. Adipose joined to caudal fin
2. Caudal fin



Boating

OUTBOARDS AID EXPLORATIONS

GOVERNMENTS of many nations are finding that the outboard motor is a vital tool for such activities as exploration, charting of seas and shorelines, archaeological research, mineral prospecting, anthropological surveys, weather observation, and many other scientific endeavors.

Today, on all continents of the world from the arctic to the equatorial jungle, the modern two-cycle outboard engine is enabling each man to better adjust himself to the earth which he inhabits.

Typical of the growing role of the outboard engine in exploration is that seen during a current expedition to Greenland's eastern coast. Two hardy Danish scientists are exploring ancient Viking settlements, traveling by sea in an aluminum boat equipped with a five-horsepower motor. Sponsored by the Danish National Museum, a governmental organization, the expedition members are making frequent stops on a 400-mile coastline extending from Angmagssalik north toward Cape Brewster. Factors in the selection of an outboard over other types of marine propulsion include the low fuel consumption of the outboard, simple maintenance features, and dependability.

Far across the world, in Asia, survey activities are carried out under the Colombo Plan for Luang Prabang along the Mekong River from heavy launches which are powered by dual mountings of large engines.

Central Africa was traversed comparatively recently by the First Trans-African Waterway Expedition, which used outboard-powered craft in the first water crossing of that continent. The group of scientists concluded from their observations that the development of such a route for larger vessels could mean as much to Central Africa as the newly-opened St. Lawrence Seaway does to the heartland of North America. The history-making expedition took four months to complete. Three lakes and seven rivers in eight mid-continent territories were used to traverse 3,300 hazardous miles. Officials of the expedition stated that only with the outboard motor was it possible to successfully complete the journey.

In explorations and research carried out in the sea, the outboard motor plays a prominent part. In the Gulf of Siam, scientists of the George Vanderbilt Foundation, Stanford University, are carrying out a study of coral reef fishes over a period of several years. By using outboards, research experts equipped with aqualungs easily maneuver their boats along reefs where they can conveniently enter the water to collect fishes, coral and other marine life, and to take underwater photographs.

Similar use of outboard motors is made in the Caribbean, where fish biologists and researchers work year-round and regard the two-cycle outboard engine as an essential scientific tool.

Government-sponsored and private mining ventures employ many outboard motors, in such activities as exploring for and developing of valuable mineral sources. Many such minerals, discovered and undiscovered, are in locations that can be reached only by water, such as the jungle country of Netherlands Guiana, in the northern part of South America. There, outboards power many expeditions into the interior of the country, making round trips of hundreds of miles, on rivers replete with rapids, falls, and other obstacles.

Prospecting for oil takes expeditions to far places, many of which can be reached only by water, and most efficiently with the aid of outboard motors. In many countries where rivers offer the only means of transport, seismic oil exploration parties as well as exploratory drill crews and tons of equipment are transported in outboard-powered boats.

Inexpensive Accessories May Add Much to Enjoyment of Your Boat

THE law prescribes that certain equipment be aboard your boat before you take her out, and common sense dictates that other items be aboard for your comfort and safety. Less important to your safety, but adding a great deal to your boating enjoyment, are other accessories which will normally be accumulated by the avid boatman sooner or later.

To satisfy your common sense about boating safety and to comply with regulations, you should carry the required life preservers, running lights and other equipment. You should always have an anchor, flares, boat horn or whistle, paddle and a bailing device.

Going beyond the requirements, there are a number of relatively inexpensive accessories which you can obtain for your boat. A large group of these are not dependent on electrical power for their operation, so can be simply installed in your boat without any additional cost above the purchase price.

For example it is human nature to be aware of speed of travel, no matter in what vehicle we might ride. A marine speedometer is relatively inexpensive and will come in especially handy in cruising areas on which speed restrictions are placed.

Even when cruising small lakes and rivers, a boat compass is a handy instrument. Although you might not need it to find your way, it is useful in keeping your direction straight on an overcast day, and it may become a lifesaver should you become lost in strange waters.

Handy to have at any time you are on the water is a barometer, which will give an indication of what you can expect from the weather. If you trailer your boat home after each outing, it serves as an all-purpose barometer for you.

A marine clock will allow you to leave your watch

on shore when you go out in your boat, especially if you plan to do some swimming or fishing from your boat—activities during which you could damage a wrist watch. Most marine clocks are of the eight-day variety, another convenient point.

When traveling on the water a pair of binoculars is always useful. They can be used in spotting buoys and markers in strange waters and for all sorts of interesting observations on landmarks, wildlife and other boats.

For the enjoyment of those aboard and for the very serious business of obtaining weather information, a portable radio aboard a boat can be a valuable addition to your boating equipment. It will give you the same comfort and relaxation that your home radio gives when in your living room.

There are many other useful and inexpensive additions to your boating equipment that will add to your enjoyment. Such items as a rear vision mirror (especially useful when pulling water skiers), clamp-on trays for eating lunches aboard, metal holders which attach to your boat for holding drinking glasses, wind indicators, rubber mooring snubbers and litter baskets are also excellent to have aboard.

You can, of course, get into such items as tachometers, depth indicators and position finders, but this is taking one step beyond. It's the little extras that add that extra pleasure to your life aboard your boat.

Experienced Boatmen Regularly Check Lines

Experienced boatmen always check to make sure their lines are safe and strong before they take their boat out on the water after a winter lay-up, and they then continue to make periodic checks of these lines during the season.

All skippers should make replacements immediately when they find frayed or rotted line. It is wise to examine all your lines over their entire length. Remember, your boat's safety, and even your own, may depend upon the reliability of your lines at some time during the boating season—if not constantly.

Dear Editor:

In the December 1961 issue of the PENNSYLVANIA ANGLER, Vol. 30, No. 12, on page 16, question No. 5 of the Boating Quiz states, when pulling two skiers, one rope should be shorter than the other. The answer is False.

We believe this answer is incorrect and should be True, because with one rope shorter than the other a skier moving toward the other skier would run into the rope rather than into the other skier. If one rope is shorter than the other one, a skier could go under the rope or over the rope as the case may determine, thus preventing an accident. The ropes should be 4 to 6 feet different in length.

We both have boats and do a good bit of skiing, one is a 35 HP and the other is a 45 HP. Both boats are 15 feet in length.

We would appreciate any comments you might give to us on this matter.

For Better Boating,
Tpr. James Rendar,
PSP, Gibsonia, Pa.
Tpr. Paul Bagnall,
PSP, Gibsonia, Pa.

Any comments from readers?

Dear Editor:

I note your quandary about terminology in the use of oars, and hope I can recall correctly.

In 1929 I graduated as a Merchant Marine officer from the Pennsylvania State Nautical Schoolship "Annapolis" and in my training period we frequently used small boats. If I remember correctly, the "rowlock" is seldom seen or used as it is actually only a deep "groove" in the gunwale into which an oar may be laid. I never liked it because the oar easily jumps out. The oarlock is a metal "Y" and is inserted in a hole in a metal plate on the gunwale. The oarlock is usually fastened to the gunwale plate with a short chain so the oar is not lost overboard. In some few instances it is fastened to the oar itself by a pin through the oar. The oarlock is always part of the oar itself. Hope this helps.

Thomas U. Neiffer
Pottstown, Pa.

Helps a little. I still want to know if "oarlocks" are used for sculling and "rowlocks" are for rowing.

Dear Sir:

See "Rowlocks—Oarlocks" in your February, 1962, issue of the PENNSYLVANIA ANGLER. Rowing in the U. S. over 40 years, we find oarlocks are to any rowing boat as bow is to stern. Sculling is a type of rowing, shape of oar and boat used; single-scull, double-scull, quadruple-scull and pair-oared shell, four-oared shell, light-oared shell all use oarlocks. Locking pivot point of oar, in rowing any type of boat, is known as an oarlock. We do not know of "rowlocks" and we, too, would like more information on the subject.

Joseph J. Sonzogni, Vice President
Sr. Lt. Harry A. Harchuk
Fairmount Rowing Assoc. (Boat House No. 2)
Fairmount Park, Philadelphia, Pa.

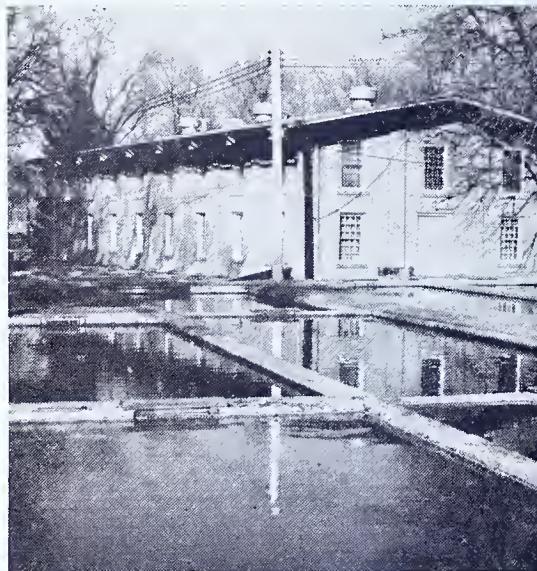
Spin a yarn? Someone who tells a story at length spins a yarn. The term comes from the sea because sailors would talk endlessly while spinning yarn to make rope from twisted hemp.



The Trout Stocking Story in Pennsylvania



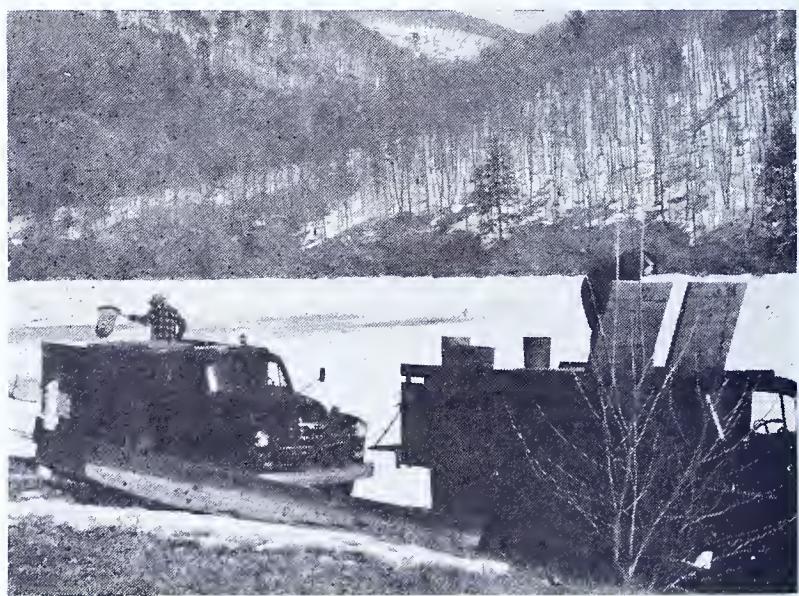
FLEET'S IN! Only part of Fish Commission's tanker fleet poised to carry trout to far corners of the Commonwealth.



FROM HOLDING PONDS at hatcheries the Commission throughout state, carry this season for Pennsylvania anglers.



FIRST STOP, tankers await sportsmen to accept consignment, join caravan to help with stocking chores. Stop is at Coburn, Pa., destination—Penns Creek.



FREEZING WEATHER, but stocking goes on! Scene is on Pine Creek Reservoir Dam near English Center, north of Williamsport.



HANDING DOWN NET is job for driver, sportsman often gets face full of fish, wet net, wet pants climbing up and down stream bank obstacle-course.



TACKLE BUSTER hits the water as he squirts out of net. This raises the blood pressure of all stocking kabitizers.

Annual Pilgrimage — *Over 2,000,000 trout travel 500,000 miles stocked over 4,300 miles of stream plus 2,256 acres of lakes!*



SORTED AND WEIGHED (Benner Spring site shown here) for legal sizing and the "records."



LOADING UP . . . after the sorting, weighing processes, trout are made as comfortable as possible for their pilgrimage to streams and lakes open to public fishing.



On ice of Upper Woods Pond, Wayne
sorted the trout . . . brrrrrr!



WARMER SPRING DAY brings out just about everyone
to watch trout get a new home in Silkworth Lake.



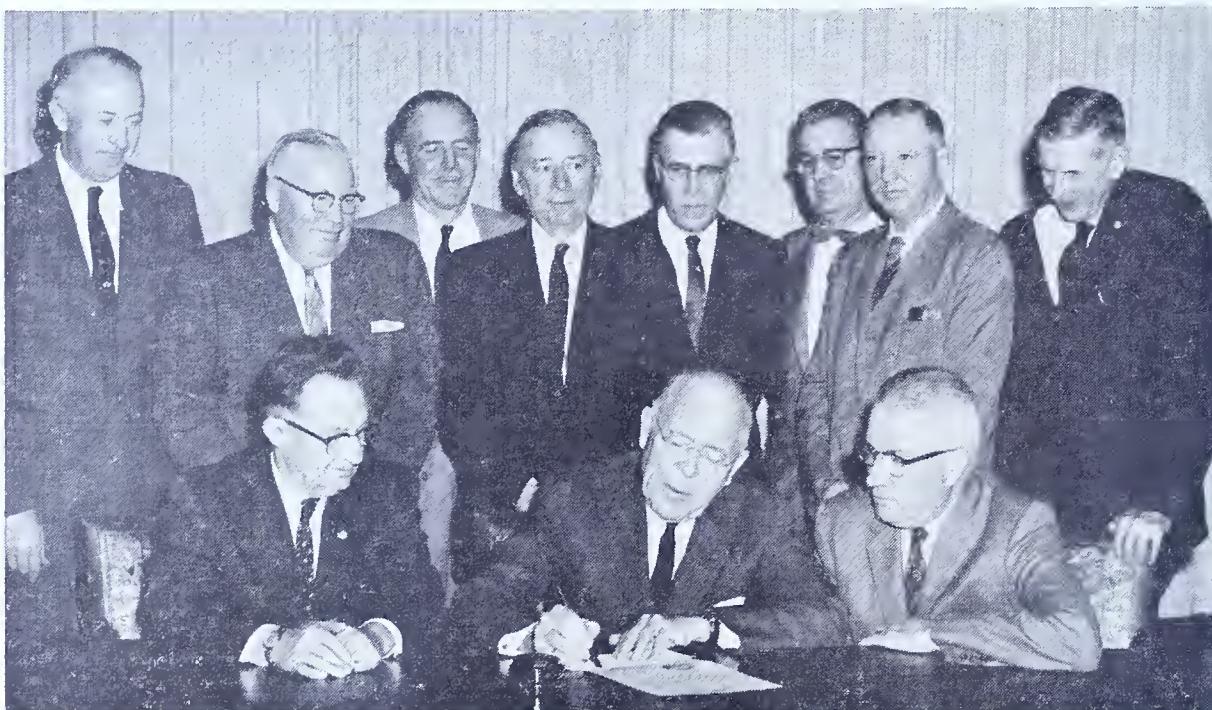
PERY WORK stocking Harvey's Lake, loading
trout to distribute trout.



EARLY REGATTA? Nope, . . . only sportsmen chugging over Harvey's Lake putting them in!

NATIONAL WILDLIFE WEEK, MARCH 18-24, 1962

Conservation of wetlands necessary for future of man, wildlife!



GOVERNOR DAVID L. LAWRENCE signs Wildlife Week Proclamation in presence of state conservation agency heads, officials of Pennsylvania sportsmen's groups. Seated at Governor's right is Seth L. Myers, Pennsylvania State Chairman, National Wildlife Week, at left, Everett Henderson, president, Pennsylvania Federation of Sportsmen's Clubs. Standing, left to right, Ivan McKeever, State Soil Conservationist; Albert M. Day, Executive Director, Pennsylvania Fish Commission; Henry Werner, vice president, Pennsylvania Federation Sportsmen's Clubs; Oscar Becker, past president of the Federation; Dr. Charles Wilbar, Secretary, Pennsylvania Department of Health; James F. G. Sheffer, alternate delegate, National Wildlife Fed.; M. J. Golden, Executive Director, Pennsylvania Game Commission; and Dr. Maurice K. Goddard, Secretary, Department of Forests and Waters.

ALL over the continent, wild ducks and geese are heeding an age-old call of spring to head for northern nesting grounds where they will attempt to reproduce their kind. The "V" of high-fliers or the rush of a flock rising swiftly from the water seldom fails to stir our emotion and admiration, yet what will these birds find this spring as they seek nesting sites?

To put it simply, the ducks are in a dilemma. The situation is serious, in fact, the National Wildlife Federation and its state affiliates have decided it should be featured during the current observance of National Wildlife Week. Theme of the Week, being observed March 18-24 this year, is: "Waterfowl for the Future, by Conservation of Wetlands Which Benefit Man and Wildlife."

PROCLAMATION

Wildlife Week—March 18-24, 1962

"WHEREAS, The people of Pennsylvania are dependent upon the natural resources—soils, water, forests, grasslands, minerals and wildlife—to sustain life and contribute to the commerce, agriculture and recreation of future citizens of the State of Pennsylvania; and

"WHEREAS, There is growing concern about the future continental waterfowl population and especially the destruction and drainage of wetlands which provide nesting areas for waterfowl and other wildlife; and

"WHEREAS, These natural water storage areas may be of infinite value to man in the conservation of water resources for an expanding population; and

"WHEREAS, The week of March 18-24, 1962, will be observed across the Nation as National Wildlife Week, this being a time set aside to alert all the citizens of the Nation to the need for wise and proper use of all the natural resources;

"NOW, THEREFORE, I, David L. Lawrence, Governor of the Commonwealth of Pennsylvania, do hereby proclaim March 18-24, 1962, as WILDLIFE WEEK in Pennsylvania.

GIVEN under my hand and the Great Seal of the State, at the City of Harrisburg, this thirtieth day of January, in the year of our Lord one thousand nine hundred and sixty-two, and of the Commonwealth the one hundred and eighty-sixth."

DAVID L. LAWRENCE
GOVERNOR



New 20-Acre Lake Irena at Hazleton Open to Public Fishing This Spring

Commission to Stock Brook Trout; Bass Later

Another phase of Greater Hazleton's Community Park project was completed recently when water in newly-created Lake Irena finally reached the level at which it spilled over the spillway—indicating it had expanded to its maximum capacity.

The event was announced by Park Board President Thomas Barrett who said that Lake Irena now covers some 20 acres and is about 28 feet deep at its greatest depth.

At the same time, it was announced by Vincent Gennaro, a director of the Park Association, that plans have been made for stocking the lake with game fish in time for this year's season.

Lake Irena was constructed as a community project by Fred Correale and members of the Correale Construction family at an estimated cost of some \$85,000—all donated to the community by the Correales. In appreciation, the lake was named after Mr. Correale's mother.

Hundreds of other volunteer workers and dozens of construction firms provided free labor and equipment to help complete the project.

Gennaro said that an inspection of the lake was made by Regional Fishery Manager Terry D. Rader and district wardens Frederick Ohlsen and Robert Becker of the Pennsylvania Fish Commission.

In a report by Rader to Gordon L. Trembley, chief aquatic biologist for the Pennsylvania Fish Commission, it was recommended that brook trout be stocked in the lake during the time it is being developed as a bass fishery which is the ultimate goal.

Since the Fish Commission does not have adult largemouth bass available for stocking this year, the brook trout will be stocked so anglers can use the lake this coming season.

Rader outlined the following plan:

1. Stock brook trout before the opening of the 1962 season.
2. Make a complete biological investigation of the lake during the summer of 1962.
3. Stock largemouth bass fingerlings following the survey if conditions are found to be favorable for this species.
4. Stock brook trout before the opening of the 1963 season.

NEWLY CREATED LAKE IRENA, a phase of Greater Hazleton's Community Park project, is viewed by Thomas Barrett, left, park board president, and Vincent Gennaro, a director of the Park Association. The Fish Commission will stock the lake with brook trout this spring but recommends it be developed as a bass fishery later.

5. Stock bass fingerlings again in 1963 and a forage species (perch, bluegills, etc.) as determined by the survey.

6. Discontinue trout stocking after 1963.

7. Supplement the bass population whenever necessary as determined by subsequent studies.

Canoe Races Scheduled on Susquehanna

The Susquehanna River will be the scene of two down-river canoe races under the sanction of the U. S. Olympic Development Committee and the American Canoe Association if recent plans materialize.

First of the races, according to plan, would be held June 3, beginning at an unnamed point to date and ending at Wyalusing. The second would be set for early October on an expected course between Laceyville and Tunkhannock.

The races will probably consist of five open classes and one for Boy and Girl Scouts. These include individual single blade, individual double blade, tandem single blade, tandem double blade, mixed single blade tandem and tandem Scout class. A modest entry fee will be charged.

Several Canadian expert canoeists are expected to compete.

Susquehanna Clubs Sponsor Ninth Annual Poster-Essay Contest

The Susquehanna County Federation of Sportsmen's Clubs will sponsor its Ninth Annual Lynn Rosenkrans Memorial Conservation Essay and Poster contest. The conservation poster contest is limited to the efforts of 7th, 8th and 9th grade school children of Susquehanna County. The conservation essay contest is limited to the 10th and 11th grades. Prizes are awarded in each division for the first four winners. First prize winner of each division also receives for the school he attends the engraved "Lynn Rosenkrans Memorial Conservation Contest Trophy." Deadline is March 23 and all entries are sent to Robert DeLuca, Mountain View Joint Schools, Kingsley, Pa.

SUCKER TECHNIQUES

Originally I did not believe this matter of color could be so important, but then one day while fishing at one of my favorite sucker holes, I made a test. I proceeded to use two hooks on my line, one baited with red worms; the other with regular light colored worms. It was a good day for suckers, and in due time I had caught a nice mess. But the important point was that all of them were caught on the hook which I had baited with red worms. In fact, the worms used on the other hook were still intact when I quit fishing for the day! I should point out too, I suppose, that by red worms I do not mean "manure" worms. The latter, which are found strictly in manure are not particularly good for suckers.

This brings up the matter of whether suckers go by scent. I don't believe they do, but I do know that some old-timers have the habit of spitting tobacco juice on a hook full of worms just before casting the bait out in the stream; I often wondered if cigarette smoke would work just as well, since I do not chew tobacco regularly? My grandfather often added asafetida to his can of fish worms, and perhaps it's one of those things I have yet to learn.

Equally important is the hook. Size six or eight can be used, and I find the eagle claw variety most effective. However hooks as such, catch suckers only when they are completely hidden in the bait.

Unlike trout, suckers are very skeptical about hooks, and one of the first things I learned about sucker fishing from an expert was that you could not catch a sucker as long as part of the hook was left exposed.

To find out how much truth there was to this reasoning I again made a test. My test, incidentally, was made at a famous sucker hole along the Big Pine Creek near Gaines which is literally overflowing with suckers in April and May.

I used two hooks as usual, but one of them was a rather long shanked affair which could not have been completely covered with worms without difficulty and during the course of several hours this particular hook caught absolutely no fish! The other one however saved the day, for I managed to literally drag a dozen "good sized" suckers onto the bank.

There is also some question about how many worms one should use on one hook. Some sucker fishers assert that at least two or more should be used to form a so called "gob" with numerous wiggling ends. This, they claim, attracts the sucker in the same manner as a spinner attracts a bass. In other words a wiggling bait is best. It does not mean a large bait, for then you could use large night crawlers cut into chunks. These, of course, are not exceptionally inviting to the sucker insofar as food is concerned. Apparently quality rather than quantity is his forte.

On the other hand, I do not mean to say that only small reddish worms are effective, because suckers have been caught on a large variety of bait, including such things as white grubs and bacon rind.—*Larry Kopp*

Tackle Tips

By **DON SHINER**

Kitchen's Creek, a fine trout stream in Northcentral Pennsylvania, could easily hold the record for the slipperiest rocks in North America. Take two steps from shore and you flip, spilling rod, fly boxes, hat and other equipment in the drink. I detest these unscheduled swims! I caught few trout simply because the diatom-coated rocks kept my booted feet continually off balance.

Don a pair of boot chains, trouble fades. With chains, one can walk a slippery trout or bass stream as easily as walking across the carpeted floor of your home!

If you have trouble with a trout stream matching the description of Kitchen's Creek, go get boot chains! Or, make them yourself. They are really quite simple to assemble.

Glance at the series of illustrations. Note the required materials. These include: pieces of leather or canvas, eyelets, buckles (those from worn out belts will do nicely), rivets, several feet of small chain, and a pair of shoe laces.

Start the project by cutting a paper template to simulate a boot strap. This strap merely holds the chains firmly against the boot sole. A buckle, at the heel, provides quick removal of the strap. Laces across the toe keep the strap in place and allow for shrinkage of leather.

Trace the outline of the paper template on the leather. Cut a matched pair (left side and right side) for each boot. Punch eyelets for the chains and laces, rivet the buckles in place. Now you have a pair of boot chains to cut through the film of a slippery bottom. Firm footing restored, the angler can concentrate on casting with greater confidence and finesse. Casting technique will improve and obviously, this could mean a better catch.

OUTDOOR BOOKS . . .

"How to Fish From Top to Bottom," by Sid Gordon (The Stackpole Company, Harrisburg, Pa.).

The late Sid Gordon was a man who spent much of his lifetime delving into the ways and means of better fishing. When he wrote *"How to Fish From Top to Bottom,"* he actually put together a textbook that would enable any student of fishing to improve his sport.

The author's descriptions of how to "read water" should prove intriguing to any angler. Aside from unlocking many angling secrets, just reading the book should provide many, many hours of real pleasure.

It is assumed most anglers have the know-how and ability to deliver a lure. This ability, coupled with a thorough understanding of Gordon's techniques for reading water, should help the average angler to develop into an outstanding fisherman. RSO

Quit Flipping—Carry Chains



TRIALS include: sheet of leather, several chain, buckles, rivets, eyelets.



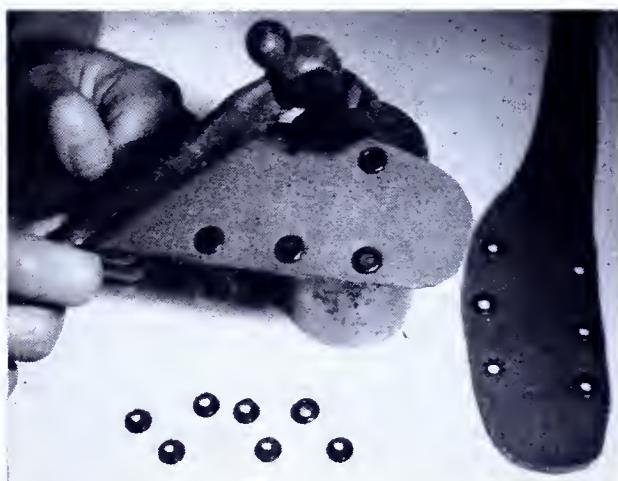
PAPER TEMPLATE is cut to fit side of boot.



TRACE OUTLINE of suitable template to leather. Cut matched pair of straps for each boot.



PUNCH HOLES for eyelets and laces.



FASTEN EYELETS securely in place.



INSERT CHAIN through eyelets.



CHAINS completed.



LACES ACROSS TOE and buckle at heel hold chain strap firmly on boot. When things get slippery or slimy put on the chains!



Notes . . .

from the Streams

January 21, 28 and February 4 broke all previous records for large crowds at Presque Isle Bay, Erie County. Department of Forests and Waters officials at the Peninsula counted more than 40,000 people on the area and it was conservatively estimated more than half the crowd were actively engaged in fishing. More and more people are using ice shanties for more comfort. For those who have not seen the "City On Ice," it is difficult to describe. Shanties from a size occupied by the family dog, to large sectional affairs accommodating 12 to 15 people. One can stand in one spot and count more than 400 of these shanties, see hundreds of less comfortable anglers, sitting on sleds, boxes and pails, out on the open ice. It appears to prove just what the Pennsylvania Fish Commission has been trying to tell the public for years . . . ice fishing is fun!—**S. Carlyle Sheldon, Warden Supervisor, Northwest Region.**

#

Ice boating is making a comeback on Pymatuning Lake after a lull the past several years. A good summer fishing spot it should be a good bet for ice fishing but very little has been observed to date.—**Warden Raymond Hoover** (Crawford).

#

On January 24, I visited our Benner Spring Research Station with the residents and staff of Youth Forestry Camp No. 3, Robert McCarty, director. The impression left on the group in regard to our work, facilities and general hatchery operations was most favorable. The group thanked Mr. Trembley and staff for an interesting tour of the project.—**Warden Richard Owens** (Huntingdon and Mifflin).

#

James F. Yoder, District Warden (Luzerne and East Sullivan Counties), came upon Newport Township Chief of Police, Chet Mack, ice fishing on Lake Jean recently. As Warden Yoder arrived on the scene the Chief got a "flag." After waiting out the run, Chet set the hook, carefully retrieving the fish. When the fish, a walleye, neared the hole in the ice it slipped off the hook, hovered vertically momentarily, then plunged into the icy waters, set all engines "full astern" and disappeared. It makes a fellow believe the hand is NOT quicker than the 'eye . . . walleye, that is.

#

On Saturday, January 20, while conducting a routine patrol on Lake Jean, I found five cars parked near the inlet on Route 487 but not a fisherman in sight. Tracking the snow I began a long slippery trek back to a section of the lake originally called Mud Pond before the two were joined. By a U. S. G. S. map measurement, it was nearly 1½ miles to where I saw the first fisherman. Most were fishing within 100 yards of the distant shore and I guessed it was another case of the "grass greener on the other side." Wrong guess. The first fish I saw lying on the ice was an unusually heavy-girthed pickerel—22 inches long. As I continued my check I counted 14 nice pickerel, many yellow perch. Tradition around here has it the fish "were always in Mud Pond" and I can't argue with that.

On top of reports from anglers tying into muskies at Lake Jean last season, in January a Mocanaqua angler, fishing through the ice with tip-ups, reported catching a musky just under 29 inches. If muskies continue to flourish in the lake, some of that light spinning tackle will disappear next season.—**District Warden James Yoder** (Luzerne and East Sullivan).

While checking ice fishing conditions during the early part of January, I found tracks of two bears on the search for food during the warm weather between Christmas and New Year. One bear came out of Terrace Mountain, crossed the ice on Raystown Dam a short distance above the dam breast. The other bear trotted around Whipple Dam (also in Huntingdon County), visited a game feeder and a cabin in search of food.

—**Warden Supervisor Harold Corbin**, South Central Region.

#

District Warden Bryce Carnell (Franklin and Fulton) reports spear fishing through the ice has become great sport in his district. It is done by cutting a number of holes through the ice in a straight line across the creek. A man "stands" at each hole with a spear while the rest of the gang drive. Driving is done by walking slowly, tapping the ice with a stick. Suckers will move ahead of the "drivers" and when they swim under the holes in the ice, the "standers" spear them.

#

Carbon County Special Fish Wardens Robert E. Becker, Joseph E. Rashko and John Glovatsky recently attended the 40-hour Basic Field Course given by the Pennsylvania State Police and prepared by the State Police Academy. The course ran two nights a week for 10 weeks.—**District Warden Frederick Ohlsen** (Carbon).

#

While checking ice fishermen on Forest Lake recently, **District Warden G. Max Noll** noted a nice 16-inch blue catfish taken on a live minnow by one lucky fisherman. It weighed about 3 pounds. Anglers were catching catfish and brown bullheads through the ice, unusual for wintertime in this section.

#

Veteran angler Pete Barnoski, of Ledge Hill, figured **District Warden James F. Yoder** (Luzerne and E. Sullivan) was off his feed or something, else he would have been "caught" on the ice with a 10-inch pickerel. Pete caught a 24-inch that had some sort of tail protruding from its mouth. With pliers Pete extracted a 10-inch pickerel relative that showed no signs of deterioration. Pete now wonders if, as he was holding the extracted victim Warden Yoder happened by, whether said story would get the well known heave-ho.

#

Fred Rickard, Cherry Ridge (Wayne), has his fish hatchery lined with air in plastic tubes to keep ice off the ponds in winter. While most lakes are locked with 10 to 15 inches of ice, Fred was spin casting for pickerel. Since air was used in the ponds, there has been no winter kill in his hatchery.—**District Warden Harland F. Reynolds** (Wayne).

#

Roman and brother Chet Rusilosky, friend Steve Levi, a trio of Luzerne County anglers, have had fine luck fishing for walleye at night via light-equipped tip-ups on Lake Silkworth. Creek chubs have it over shiners and when tip-ups are placed near shore in about 8 feet of water, luck was best. The tip-ups are modified for night fishing by attaching a battery to which has been soldered a small bulb. This is placed in a position which will be visible from all directions. When a fish strikes, the spool, below the water level activates an old set of discarded auto distributor points, completing the circuit and sending the fisherman scurrying across the lake to land his catch. Walleye up to 28 inches and 9½ pounds have been landed by Chet Rusilosky & Company.—**District Warden James F. Yoder** (Luzerne and East Sullivan Counties).

#

While ice fishing on Newton Lake, Lackawanna County, Bruce Kraft of Archbald, Pa., caught a 10-pound, 27-inch channel catfish on live bait.—**District Warden Walter G. Luzusky** (Lackawanna).



ICE FISHING WAS GOOD at Black Moshannon Lake in Centre County when Edward Hinkle, 5, son of Fish Commissioner Albert R. Hinkle, Jr., took this nice pickerel on a tip-up. Young Ed also caught some perch.



NEW SIGNS THIS SPRING . . . on all Fish Commission tank trucks . . . "Another Load of Fish for Pennsylvania Anglers."

Who has seen the wind?
Neither you nor I:
But when the trees bow down their heads,
The wind is passing by
—Rossetti

Memo to Anglers

Commonwealth fishermen are reminded that the 1962 fishing licenses, which became effective March 1, are to be displayed on an outer garment at all times while the license holder is fishing. This law was enacted by the General Assembly and became effective September 12, 1961.

The possession limit of bait fish and fish bait is 35 bait fish or 35 fish bait, or a total of 50 combined. A typographical error in the 1962 Fishing Regulations and Summary of Fish Laws indicates the maximum of one class to be 30 instead of 35.

Queen City Club Issues Annual Trout Rearing Report for 1961

Tom Beidler, Secretary of the Queen City Sportsmen's Club's Trout Rearing Committee, recently issued his annual report for 1961.

Trout stocked in Little Lehigh and Jordan Creeks for annual fishing contests:

12" to 16"—10,495
16" to 25"— 169

Trout stocked in Little Lehigh, Jordan, Cedar Creeks and the Lehigh River for public stocking:

12" to 16"— 4,801

Excess fingerling trout distributed to sportsmen's clubs for stocking in feeder streams:

10,000 Approx.

Present inventory in nursery ponds for stocking in 1962:

Over 10"—15,590
Under 10"—16,520

These figures do not include 12,500 fingerling Steel-head trout being raised as an experiment in cooperation with the Lehigh County Fish and Game and Prot. Assoc. These fish are to be released when they reach about seven inches in length.

The following is a report of the number of hours put in by interested sportsmen on the work needed to make this operation a success:

Days of Work	Women	Men	Number of Hours
96	1	225	1,210

Barton M. Snyder, Treasurer of the Trout Rearing Committee, reported the following:

Total income 1961—\$5,936.12; total expense 1961—\$5,598.82.

The club was aided by Allentown City officials and sportsmen. Fingerlings were furnished by the Pennsylvania Fish Commission.

Dr. Goddard Speaker at Wissahickon Dinner

Dr. Maurice K. Goddard, Secretary of Pennsylvania Department of Forests and Waters, will be the speaker at the 2nd Annual Dinner Meeting of the Wissahickon Valley Watershed Association. The dinner is scheduled April 5, 1962, 7 p.m., at the Philadelphia Cricket Club, Chestnut Hill, Pa. Ernest G. Enck is president of the organization.

Dr. Glenn V. Brown Dies; Was Fish Commission Aid

Dr. Glenn V. Brown, former consultant for the Pennsylvania Fish Commission, died January 28, 1962, at Norwalk, Conn. Dr. Brown, who was 87 at the time of death, was a former resident of Mechanicsburg, Pa., for many years. He was a professor at Bucknell University for many years, then was a chemist for the Pennsylvania Department of Health, working with the Sanitary Water Board. He became ill while with the Fish Commission in 1952, his last date of employment.

Second Susquehanna Carp Derby Opens March 1

The second annual Susquehanna Carp Derby will get underway March 1 and run through June 15 for 1962. A success last season, the Tunkhannock Sportsmen's Club will again sponsor the event offering \$210 in prizes. Minor changes have been made in derby rules but a major one will extend the derby to include all Wyoming County waters. Last year only the Susquehanna River was in bounds.

Annual Montgomery Federation Banquet

Montgomery County Federation of Sportsmen's Clubs will hold their annual banquet, featuring a real old-fashioned Pennsylvania Dutch dinner, in the East Greenville Fire Hall, East Greenville, Pa., on Saturday, May 5, starting at 7:30 p.m. Maurice Goddard, Secretary of Pennsylvania Department of Forests and Waters, will be guest speaker.

New Perkiomen Officers

The following officers were elected recently by the Perkiomen Valley Sportsmen's Association: Clarence Warner, president; Adam Litka, vice president; Edward Houtz, secretary; Donald Ashenfelter, treasurer; T. E. Dunigan, J. Howard Fenstermacher and Russell Cassel, directors.

George McCann New President of Penna. State Fish and Game Protective Assn.

George McCann is the new president of the Pennsylvania State Fish and Game Protective Association of Philadelphia, succeeding Ray Neirle. The Association has a planned program for '62 that includes a Youth Nite on March 8, an exhibit at the Philadelphia Sportsmen's Show, the Annual Dinner on April 12 and the Spring Outing in May.



BIG FISH CONTEST WINNERS, Harrisburg Hunter's and Angler's Club: Front row (seated), left to right—Richard R. Strohecker, James E. Kent, Barry Strohm and Michael Holler. Back row (standing), left to right—R. E. Coble, Dennis Minnich, S. M. Leitzel, Thomas Bardolet, Vince Wachtman, Pete Wright, Russell O. Heycock and Clyde A. Shenk.

Harrisburg Hunter's and Angler's 1961 Big Fish Contest Winners

FIRST PRIZES

Robert Shultz
Brook Trout—16½"
S. M. Leitzel
Brown Trout—20¾"
Clell E. Mitchell
Rainbow Trout—23¼"
James E. Kent
Smallmouth Bass—23"
Barry Strohm
Largemouth Bass—21½"
Richard R. Strohecker
Walleyed Pike—28"
Pete Wright
Rock Bass—10¾"
Vince Wachtman
Crappie Bass—15¼"
Russel O. Heycock
Fall Fish—17"
Wayne Boyer
Catfish—30"

John Bistline, contest chairman of 24th Annual Contest.

SECOND PRIZES

Renold Bretz
Clyde A. Shenk TIE
Brown Trout—19"
Mrs. Philip Ranck
Rainbow Trout—23"
R. E. Coble
Smallmouth Bass—22½"
Albert W. Miller
Walleyed Pike—27¼"
Thomas Bardolet
Rock Bass—10"
Barry Strohm
Crappie Bass—15"
Dennis Minnich
Richard Hocker TIE
Fall Fish—14¼"
Michael Holler
Catfish—28"

Holmesburg Club Elects Officers

Albert Schoppy was re-elected president of the Holmesburg Fish and Game Protective Association for 1962. Also elected were: Edward Nelson, 1st vice president; William Hoffer, 2nd vice president; Joseph Sheva, treasurer; Harry Frits, financial secretary, and Charles Wiley, secretary. Directors chosen were: Tony Pinzhoffer, Milt MacBain, Edward Nelson, Lee Goza, Harry Bryan, Ty Irons and Harry Swoyer.

CATFISH CAPER

Our common bull-head, be he white, black, brown or yellow, is primarily a bottom feeder and as such, plays an important role in keeping our water clean. He acts as a scavenger, spending a great deal of time moseying about the bottom in search of adequate food. He is most at home over a soft type of bottom where he can obtain the food he needs from a soft bottom, whether composed of mud, mulch, or rubble. He loves the quiet water of lakes, the slow moving back water areas of streams and rivers, where he can quietly go his way. Most fishermen swear the hours of darkness are best for Cats. However, while the night hours are productive, I have caught as many in the daytime. Summertime seems to be the only time when more men fish at night for them than in day. Possibly because it's cooler at night, more pleasant to fish.

Catfishing is bottom fishing and as such calls for a bottom fishing technique. The bait is cast out toward a suitable spot and allowed to remain there. A signal is usually given the fisherman by the catty in the form of light taps. These are best recognized by a slight jumping or tightening of the line. A useful aid in recognizing bites is the use of a Bite Clip.

A point to remember is not to be too quick in setting your hook. The catfish usually nudges the bait several times before mouthing it and then swallowing it. For this reason many men feel they have no success in catfishing because they feel the bite. Actually they didn't feel a bite, merely the preliminary.

For bait, place the entrails of two chickens in a quart jar (wide mouth type) to these add 4 or 5 tablespoons of salt, three ounces of vinegar (many prefer cider) and about the same amount of water. Close not too tightly and place in the hot sun for several days. After this has cured sufficiently, you will know it by the odor when opened. If it has not become really odoriferous, place it back for more of the same treatment. If the weather is such that there is not sufficient heat outdoors, as in the winter, placing it near the heater or a radiator will be an adequate substitute. When thoroughly cured, it may be closed tightly and placed in a refrigerator and used as needed.

Another homemade bait which works well is the blood type bait. This bait, while good, is often best made outdoors in the summer. Its smell will keep it out of your wife's kitchen (at least it does mine). The ingredients are easy to obtain. Get about one pint of liver blood from your butcher (ask him to save it) and one cup of corn meal. Place the meal in some netting (your wife's old nylon stocking is fine), then place into boiling water as you would in making a dough bait. When the meal begins to get firm, take it out of the water and knead one half of the blood into it. After adding the blood break the bait into pieces about the size of a quarter, drop these into just enough boiling water to cover (about 2 inches) the dough. When the pieces have hardened to the consistency of rubber, take them out, place them in a jar, and then

HOLD IT FELLOWS! TROUT WATERS CLOSED



All fishing in trout waters of the Commonwealth will be prohibited from midnight, March 14, to 5:00 a.m., April 14.

The waters include sections of any stream or river or any pond or lake if such section of stream or river or such pond or lake has been stocked with trout by the Fish Commission within the preceding year.

Ponds and lakes in which fishing is prohibited by this law are posted by the Fish Commission.

A complete list of the waters and sections of waters in which fishing, including spearing, is permitted during this closed season is included in the final pages of the 1962 Summary of Fish Laws.

pour the remaining blood over these dough balls. Cure these in the sun for several days and use as needed.

While the two aforementioned bait-types are most effective, all too often the casual Catty-Fisherman does not want to be bothered by having to prepare his bait well in advance. For these men fortunately there is a host of baits available. These baits are widely used and very productive. Pieces of fresh peeled shrimp about the size of a finger joint are praised most highly by lower Schuylkill River fishermen. Any kind of fresh red meat can be employed, although diced-up pieces of fresh red liver rank highest here. The worm fisherman doesn't have to feel slighted though, because the catty will accept the garden hackle with much gusto.

The terminal rigging for cat-fishing may be plain or fancy, but there are several points to remember.

1. Catfish have large mouths, so any hook 1/0 or smaller may be used, although many men prefer sizes 2-4 and 6 with a slightly turned out back.

2. Since the lead sinker can foul on the bottom easily, two things can be done to lessen this:

a. Use a snagless type flat sinker.

b. Attach the weight to the line by using a short length of line or lead or with a weaker test than the actual line itself.

3. The line should be passed through the eye of the sinker rather than directly to it, unless using the offkey rigging. This allows the fish to mouth the weight of the sinker.—*Hank Rosen*

TYING FLIES

With ALBERT G. SHIMMEL

IT HAS long been suspected that fly-fishermen have a touch of sentimentality for old traditional patterns. If that pattern has proven moderately successful the angler would not think of setting out for a day astream without a few selected specimens in his boxes.

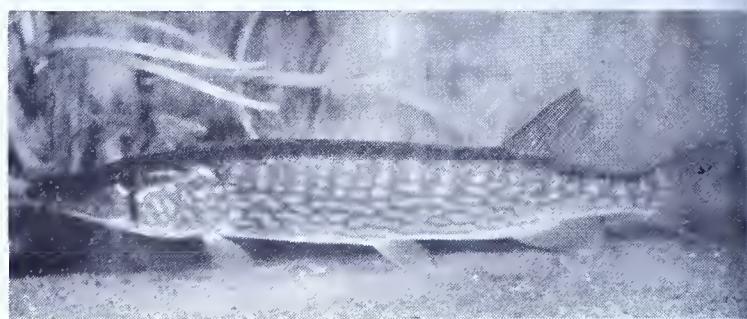
The name "March Brown" is lost in the antiquity of English fishing practice. We Americans have imported it and, with some variations, have made it our own. The author first came in contact with it among a gaudy collection received as a gift before he had reached his teens. Even the unsophisticated trout of that day accepted it as a choice morsel of food and were transferred with small ceremony from their watery habitat to the pan.

The wet pattern that has been proven most effective not only in early season but throughout the year is tied as follows. Tail of wood duck flank feather or four strands of ruffed grouse tail feather. Body is of orange fur found between the ears of a cotton tail, ribbed with medium gold tinsel. The hackle is of red brown and the wings of brown speckled turkey feathers. This fly is a fair imitation of a variety of underwater life and has been tested against many patterns that are sold under the same name.

The dry pattern has mallard flank feather for wings, a hackle and tail of mixed red and grizzle hackles, a body of orange fur from the rabbit mixed with red fox belly fur. The wings of the natural March Brown slant backward at a sixty-degree angle rather than standing upright as in most other naturals. The general color of the adult, imitated by the dry pattern, is much lighter than the nymph.

The natural is rather awkward in its attempts to get off the water, a trait trout are rather quick to use to their advantage. Thus their rise is rather deliberate both to the natural and its artificial counterpart. The angler can be too quick to strike and take the fly from the fish.

The wet pattern is very good from the beginning of the season and has the added attraction to the angler in that it can be trimmed into a very passable nymph for use in late season. A single wet-size fourteen or smaller, fished dead drift on a long fine leader will prove a very "fetching" lure from mid-season to the very end.



WANTED!

A Record Chain Pickerel

The chain pickerel is unique among American game fishes because there are not adequate records for the largest fish of this species. The keeper of the records, *Field and Stream Magazine*, had to give up on this species because the name "pickerel" is also used for northern pike, walleye and some other fishes and, therefore, caused confusion among the entries. The early record of 10 pounds, 10 ounces was disallowed because the fish proved to be a northern pike. The largest pickerel entered in the *Field and Stream* contest was a 6-pound, $\frac{1}{4}$ -ounce pickerel measuring 27 inches taken in Iona Lake, N. J. The largest pickerel taken on hook and line, but not entered in the contest, according to *Field and Stream* is a 9-pound, 3-ounce fish stretching 27 inches from Medford Lakes, N. J. Another large pickerel was a 9-pound, 30-inch fish from Green Pond, N. J. The largest chain pickerel taken by other methods was a 9-pound, 5-ounce fish measuring 29 $\frac{1}{2}$ inches from Massachusetts.

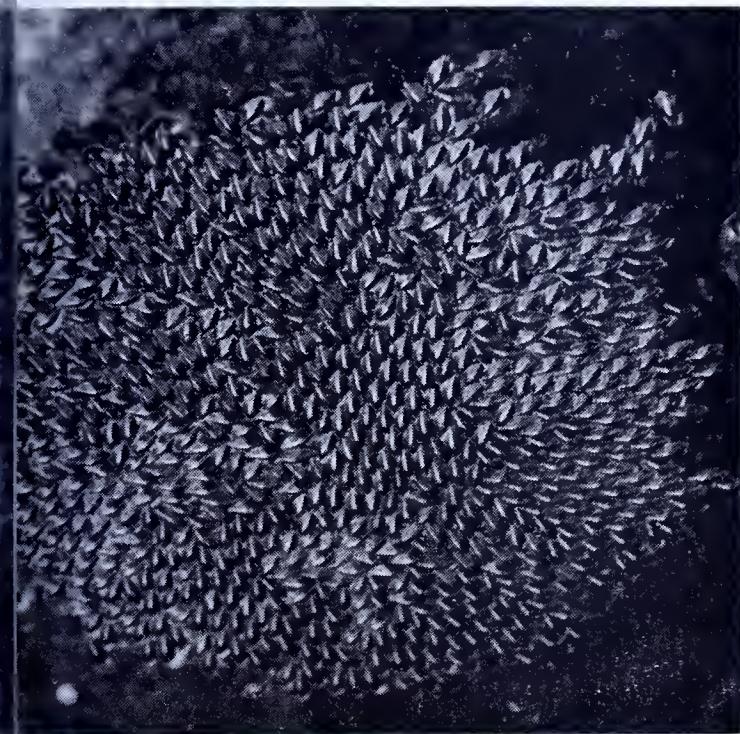
Although these are large pickerel, the writer believes that there have been and possibly will be larger pickerel than these taken from Pennsylvania lakes. He recalls when he was a boy, in the long dim past (1924), of seeing and hearing about pickerel over 30 inches taken from Porters Lake in Pike County. However, time may have distorted the sizes.

Before the little man in the white coat comes to pick up the author, and because these records are useful to biologists and sportsmen alike, the Fish Commission would like to obtain some authenticated records of large pickerel. Certainly some of you old-timers have some photos posted in a "braggin'" album which would help all of us. We are not adverse to receiving more recent records either. Send your information to the Pennsylvania Fish Commission, Benner Spring Fish Research Station, R.F.D. No. 1, Box 20-C, Bellefonte, Pa. Remember, the Fish Commission needs the records, the author needs peace of mind, and the editor of the ANGLER can use good photographs for publication.—Keen Buss, Fishery Biologist, Pennsylvania Fish Commission

The digestive systems of fish reflect their food habits. The adult lamprey eating only body fluids of other fish needs but a straight pipe for a stomach and intestine. Contrast this with the sucker which has a long intestinal tract several times the length of its body, for the less digestible foods.

Recreation is essential in the pursuit of happiness. Recreation in an adult's life should be varied to embrace a broad range of activities including non-competitive as well as competitive sports, solitude as well as companionship, contemplation as well as information, and individual creativity as well as entertainment.





Along the Nature Trail

If you go to any unpolluted pond or stream during the summer months you'll have no difficulty finding plenty of specimens of the rather elliptical whirligig beetle that belongs to the Gyrinidae family. You won't find them where the current races by, but in the over-flow back waters in side basins where things move lazily; the whirligigs will be tracing figures-of-eight on the placid surface.

Catch one if you can . . . it's most elusive . . . you'll discover it throws off a whitish fluid that has an odd odor, reminiscent of apples, but it will wash away.

Your specimen is apt to be about $\frac{1}{2}$ inch long, rather oval, rather flat. The first pair of legs are long and slender and are used for catching any small insects that fall into the water. The other two pairs of legs are short, broad, flat; these are used for swimming. Notice how snugly the hard upper wings fit the insect. Lift one carefully to see how neatly the transparent under-wing is folded beneath the first. You'll probably find the eyes quite unlike those of any other insect you've ever examined. The margin of the body appears to divide each eye into two parts. One half seems to be directed to see into the water below; the other half is slanted to look into the air above. In front of the eyes are little pits and from these are extended the oddly-shaped antennae. You'll really need a hand lens to appreciate how curiously-shaped the segments of the "feelers" are.

But if you don't like to handle the whirligigs, just enjoy watching them make their figures-of-eight . . .

"Handful of button-brothers, shining and black
Following each other's elusive track."

—Carsten Ahrens

Recreation's purpose is not to kill time but to make time live; not to help the individual serve time but to make time serve him; not to encourage people to hide from themselves but to help them find themselves.

CHANGED ADDRESS? ? ? Promptly notify Pennsylvania Fish Commission both old and new address.

HIT THE FISHING TRAILS

*with these SPECIAL . . . DETAILED . . . COUNTY
WATERS-HIGHWAY MAPS
OF PENNSYLVANIA*

Note: Your choice of any county map free with every new or renewal subscription to PENNSYLVANIA ANGLER. (See subscription form—Inside Back Cover.)

No.	Description	Unit Price	Total
	Allegheny	35¢	
	Armstrong	35¢	
	Bedford	35¢	
	Berks	35¢	
	Blair-Cambria	50¢	
	Bradford	35¢	
	Bucks-Montgomery	50¢	
	Butler	35¢	
	Cameron-Elk	50¢	
	Carbon-Monroe	50¢	
	Centre	35¢	
	Chester-Delaware	50¢	
	Clearfield	35¢	
	Clinton	35¢	
	Crawford	35¢	
	Cumberland-Adams	50¢	
	Dauphin-Lebanon	50¢	
	Erie	35¢	
	Fayette	35¢	
	Franklin-Fulton	50¢	
	Huntingdon	35¢	
	Indiana	35¢	
	Jefferson-Clarion	50¢	
	Lackawanna-Wyoming	50¢	
	Lancaster	35¢	
	Lawrence-Beaver	50¢	
	Lehigh-Northampton	50¢	
	Luzerne	35¢	
	Lycoming	35¢	
	McKean	35¢	
	Montour-Northumberland	50¢	
	Perry-Juniata-Mifflin	50¢	
	Pike	35¢	
	Potter	35¢	
	Schuylkill	35¢	
	Somerset	35¢	
	Sullivan-Columbia	50¢	
	Susquehanna	35¢	
	Tioga	35¢	
	Union-Snyder	50¢	
	Venango-Mercer	50¢	
	Warren-Forest	50¢	
	Washington-Greene	50¢	
	Wayne	35¢	
	Westmoreland	35¢	
	York	35¢	
	Total Cost		
	Plus 4% Pa. Sales Tax		
	Amount of Order		

Please send to:

Name _____

Address _____

Town _____

Make check or money order payable to the Pennsylvania Fish Commission

Mail to—PENNSYLVANIA FISH COMMISSION,
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

YOUTH OUTDOORS

By MYRON E. SHOEMAKER

WHAT is a forest besides trees?

A forest is one of the greatest things in the life of any man, woman and child. It serves so many purposes for people that it would take a ream of paper to tell about all the uses and things it does for human beings and wildlife.

A forest is a place where all kinds of wildlife seek food in order to live. Not all kinds of food, but many kinds that are not found outside the limits of the forest areas. Forests make homes for all kinds of wildlife during all seasons of the year, perhaps in a treecop, in a hole in a tree. Sometimes a tree will look alive and healthy yet there may be a huge hole up through the trunk of the tree where a disease has attacked the tree until the whole inside becomes hollow. It is here that the raccoon and other types of wildlife find homes to protect themselves from storms and enemies of all kinds.

A forest is one of the greatest gifts to mankind, for it furnishes the raw materials that go into most every item of household furnishings, especially furniture used for all kinds of purposes. A forest furnishes the bulk of the material that goes into your home. Yet there are a lot of people who never give a forest a second thought when they buy a piece of furniture or lumber with which to build a home. Most people think that furniture comes from the furniture store and lumber from the lumber yard.

To some people a forest is a place where recreation becomes real. And recreation can be real in any forest area if people know what to look for. That is, such things as soil that lies beneath a blanket of leaves that have been undisturbed while they do the job that nature intended.

The next time you go into a big forest where the trees have not been cut and slashed by lumbermen, try to feel the looseness or the softness of the soil under your feet. Drop down on your hands and knees and remove some of the leaves. As your fingers begin to feel the soil and you begin to wonder just what it is all about, remember this: The leaves that have fallen through the years have helped Mother Nature to make that soil. And it takes nature from 400 to 1,000 years to make one inch of that soil, soil which is called topsoil.

It is this rich topsoil which nature has been making in order that you might have the things you need during your life, that is, food, clothing, shelter, and now and then a little wholesome recreation.

This country of yours was founded on 9 inches of topsoil when Columbus discovered the country. At that time forty per cent of this continent was covered with trees. And it was the topsoil which was used to start raising the foods and fibers after the trees were removed so that the land could start producing the food needed by the people who lived here during the colonial days. It is the topsoil on this continent today that raises all the food and fiber needed by you and all the rest of the American people. And if the forests had not been present centuries ago there would have been no topsoil present now to produce the food you need to live and keep healthy.

Today much of our land is no longer covered with forests. The topsoil is exposed to the elements, that is why conservation is so necessary today to keep the soil where it belongs, where nature placed it, on the surface of the earth instead of flowing down some stream every time a rain washes the soil from the land.

Today, the forests that still remain are doing the job of trying to soak up water and hold it in the forests so that there will not be so much soil erosion.

Every forest is working 24 hours of every day for your



—Easton Express Photo

JOINT CATCH, small anglers, big fish, Chipper Shafer, 8, and Rockey Pickel, 10, of Easton, both hold largemouth bass they pulled out of the East Bangor Dam on January 14. The fish was 22 inches long, weighed 5½ pounds, had a girth of 14 inches!

direct or indirect personal benefit. And every tree within a forest is doing the same kind of job for you. In fact, every tree outside a forest is also working for your interests.

What is a forest besides trees?

A forest, like water, is one of God's greatest gifts to you and every other living person today. Every forest that is managed the way it should be, by sound practices of conservation, will make your life just a little bit happier.

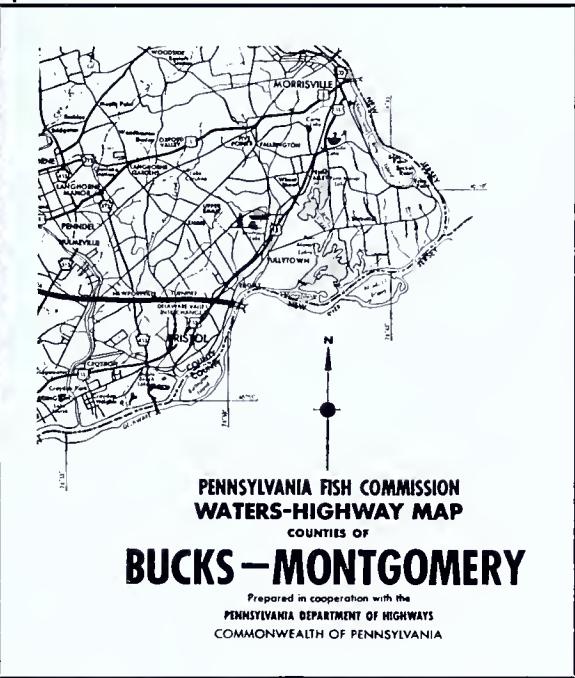
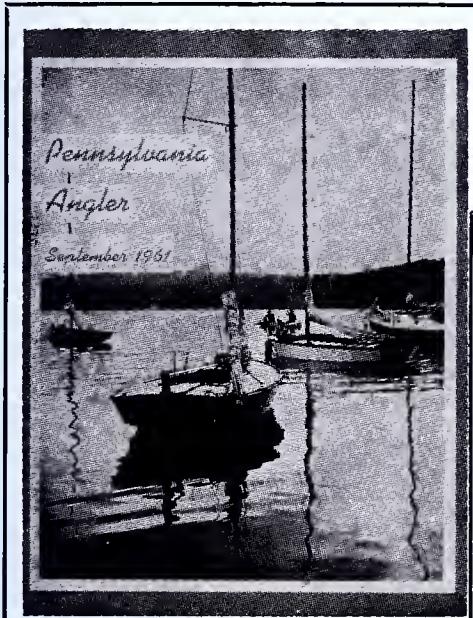
A forest is something to wonder about, to think about, to consider worthy of protecting so that food will be forthcoming from the land in order that you might live, and be able to work and play. A forest is something you will never be able to create, not unless you plant some trees now that may become forests in the years ahead.

You may not ever enjoy the products of the forest you help to create, but you can watch them grow and you can be sure that your children and grandchildren will have forests to use when they need them in the years ahead.

Teachers and youth group leaders who are looking for ideas for nature study projects may be interested in the Audubon Nature Bulletins. The Bulletins—there are 65 of them—cover a variety of natural history subjects. Among the titles are "How to lead a field trip," "The fresh-water aquarium," "Forecasting the weather," and "Track stories in mud, sand and snow."

The bulletins are four to six pages, notebook size, printed on glossy paper and well illustrated with photographs and drawings. Written by experts, they are non-technical and easy to read and understand. They cost fifteen cents each. For additional information, write the National Audubon Society, 1130 Fifth Avenue, New York 28, N. Y.

FREE FISHING MAP



**Free Choice of any
Pennsylvania County Waters-Highway Map
with every new or renewed subscription
to the Pennsylvania Angler**

Official Publication of the Pennsylvania Fish Commission

"Pennsylvania's Finest Fishing Magazine"

Here

Enclosed is \$ for my (New) (Renewal)

1 year (12 issues) \$2.00

3 years (36 issues) \$5.00

Send to:

Free Map choice county _____

Check or money order payable to the Pennsylvania Fish Commission.

Mail to—PENNSYLVANIA FISH COMMISSION,
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE



Pennsylvania
Angler

April 1962

APR 15 1962

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION



**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief
Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief
EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief

Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

DEWAYNE CAMPBELL Fishery Manager
451 Cannell Dr., Somerset, Pa. Phone: 5837

NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474

ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



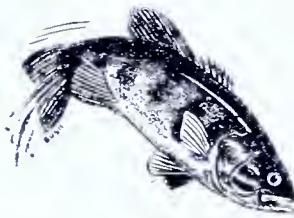
PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President Hawley

MAYNARD BOGART, Vice President Danville

JOSEPH M. CRITCHFIELD Confluence
WALLACE C. DEAN Meadville
JOHN W. GRENOBLE Carlisle

ALBERT R. HINKLE, JR. Clearfield
R. STANLEY SMITH Waynesburg
RAYMOND M. WILLIAMS East Bangor



APRIL, 1962

VOL. 31, NO. 4

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 HOW TO REPORT A FISH KILL
- 3 I'LL TAKE THE SMALL 'UNS—Paul Antolosky, District Fish Warden, Centre County
- 4 DISTINGUISHING THE TROUT OF PENNSYLVANIA
- 6 DO FISH TALK?—David Gunston
- 8 TWO GREAT ANGLERS DEPART—Sparse Grey Hackle
- 10 BOATING
- 12 TROUT TONIC—PRESCRIPTION FOR SPRING
- 14 STREAM NOTES
- 15 SPORTSMEN'S CLUB MEMOS
- 16 TROUT TRAVELS—Jim Hayes
- 16 BIG TROUT AND STREAMER
- 18 WORM FISHING FOR TROUT
- 19 BIOLOGY BRIEFS—Keen Buss, Fishery Biologist
- 20 MAKE YOUR OWN LEADERS—William Reed
- 20 TYING FLIES—Ed Shenk
- 21 THE FEMININE ANGLE—Marion Lively
- 22 EDITOR'S ANGLE
- 24 MY BEST FISHING PARTNER—M. C. Nice

Front Cover—"Lightly Hooked!"—Don Shiner

Cover two—Shohola White Water—Johnny Nicklas

Cover three—Trout Insect Emergence Tables—Chas. M. Wetzel

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa.

NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

HOW TO REPORT A FISH KILL



An active program designed to speed up the reporting of fish kills by pollution has been planned by the Pennsylvania Department of Health and the Pennsylvania Fish Commission. The Pennsylvania Federation of Sportmen's Clubs and other organized sportsmen's groups are expected to have major roles in initiating this state-wide educational program.

Some very essential "tools" have been prepared to help accomplish the purposes of this program. A 35 mm color slide lecture, entitled "A Day in the Life of a Fisherman," will be used as the basis for an educational program which is to acquaint sportsmen with the proper procedures for reporting fish kills.

A leaflet, "How to Improve Your Fishing by Reporting Fish Kills," will be distributed to groups and individuals who have received training in the proper use of the leaflet. It includes complete instructions for the proper reporting of a fish kill, directions for the collecting of samples of polluted water and labels to be used to identify such samples. Also included in the leaflet is a complete listing of fish wardens and regional sanitary engineers.

Initially it is planned that the training programs, including the showing of the slide lecture, will be held on a county-wide basis. Wherever possible, county federations or other groups of clubs should arrange such meetings in order to avoid the necessity for fish wardens to present the programs to small individual groups.

I'LL TAKE THE SMALL 'UNS

By PAUL ANTOLOSKY

District Fish Warden, Centre County

My association with the many people enjoying the value of outdoor recreation has been both interesting and educational. In the normal course of a day's activity, a Fish Warden has an excellent opportunity to meet people in all walks of life. Primarily, regardless of their occupations, the people I meet are relaxing and enjoying themselves at the sport they all have in common—fishing. Among this assorted group of individuals is the rare breed of fisherman that, to me, is the most interesting of all. He is the fisherman that has no concern whatsoever about stocked fish or stocked streams and his motto, or creed, if you will, is, "I'll take the small 'uns."

My first introduction to this almost unique class of fisherman occurred several years ago while I was patrolling a small mountain stream in Centre County. Walking along the stream I came upon a man so completely absorbed in the task at hand that he did not see or even hear my approach. I walked a little closer, sat down on a rock, lit a cigarette, and learned an interesting lesson in small stream fishing.

His equipment consisted of a small four or five foot bamboo rod with a small level wind type reel which held perhaps fifteen or twenty feet of line. Attached to the line was a very short length of leader and a small bait hook. His bait was the common small red worm which, at this time, proved to be the most productive. As I watched, I could see him dangle his bait into every nook and cranny that could possibly hide a trout. Under old logs, between the stones, and under the washed out holes beneath the banks he presented his offering.

Action was soon coming and as he jerked his rod slightly, I could see a small native brook trout splashing at the business end of his line and out came the trout. The fisherman removed a short length of ruler from his jacket and after careful measurement, the undersized trout was returned carefully to the stream. This procedure was repeated a number of times and during the process, the angler added two "keepers" to his creel.

So preoccupied was this fisherman I actually had to tap him on the shoulder before he became aware of my presence. I identified myself, whereupon he proudly deposited on the grass five most beautiful brook trout. All were thick bodied, firm, with a coloration impossible to describe—truly the ultimate in piscatorial beauty. Although these fish were only six to eight inches in length, size seemed to be of little importance.

I could see he was eager to start a conversation and without too much prompting, launched into the subject of why he preferred this particular type of fishing. Aside from being practically alone, with very little possibility of having anyone disturb his fishing, completely away from the hubbub of everyday activity, the peaceful atmosphere of a beautiful mountain stream



Want to Catch More Trout?

Kill Less !!

acted as a soothing tonic for his nerves. Here he could fish at the pace he preferred—if he wanted to examine the pool ahead of him, he could do so at his leisure. He didn't have to worry about the stream being stocked, and, furthermore, the fish he did catch were unrivaled in beauty and edibility.

During the course of our conversation, I could sense that here was a true conservationist, a man who really enjoyed the "fringe benefits" of fishing. Perhaps a bit of mental telepathy took over at this point, for as I was getting ready to leave he remarked, "You know, to me, this is worth the price of a fishing license just to spend one day like this outdoors. The pleasure I get cannot be measured by dollars and cents. Sure, perhaps the fish I catch are small and not as costly as stocked trout, but how could I ever put a price tag on the satisfaction I derive from a day such as this?" I agreed with a hearty "Amen," bade this interesting angler a goodbye, and headed back to my car.

As time progressed I had many opportunities to meet other fishermen who were in accordance with the thoughts of my friend. I decided, before too many days went by, I would try this kind of fishing myself. After I had spent just one day at it I was completely convinced that here was a new outlook in fishing experiences. Granted, you have to do some walking and scouting to find this "off the beaten track" fishing, but for a change of pace, full of delightful surprises, try it, and perhaps you too will become one of those who say, "I'll take the small 'uns."

Distinguishing

The Trout

of Pennsylvania

(Family—Salmonidae)

By

JACK MILLER and KEEN BUSS

Fishery Biologists

Benner Spring Fish Research Station
Pennsylvania Fish Commission

HERE are four species of trout in Pennsylvania—the brown trout, the rainbow trout, the brook trout and the lake trout. The brook trout and possibly the lake trout are native to Pennsylvania. In the late 19th century lake trout were planted in many lakes in the northeastern portion of the state, and the current stocks may have originated from these plantings. The brown trout are made up of many strains imported from Europe. The rainbow trout originated from the Pacific drainage of the west coast of the United States.

The variations in color within the species are very striking due to heredity, water factors, foods, physical conditions and hatchery stocks. It is said that some of the present brook trout strain reared in the hatcheries originated from Canada, via the Trexler Hatchery in Allentown, about 1916.

All trout reared in the hatcheries today are fall spawners but originally the rainbow trout spawned in the spring. Hatchery selection has moved their spawning time to early fall.

Wild trout lay their eggs in gravel depressions called redds which are formed by the actions of the female's fins and body. After the eggs are fertilized they are covered with gravel by the female and the parents have no more to do with the eggs or young. Mortality is high among young trout because they exist in a helpless state as sac-fry for a long period of time, depending on the water temperature.

The trout, which is a member of the salmon family, has one characteristic which is not present in many fishes. This structural difference is the presence of the adipose fin, the fatty fin without rays which is found between the dorsal and caudal fins.

The brook trout (*Salvelinus fontinalis*) is probably the most beautiful of the native fishes. The back is olive-green, mottled with dark gray overmarkings. This color pattern is carried through on the dorsal fin. The color on the sides grade to lighter shades on the belly. The red spots on the sides, when present, have blue halos. Maximum length in Pennsylvania is about 20 inches.

The lake trout (*Salvelinus namaycush*) is not common in Pennsylvania but does provide fishing for enthusiasts in a few lakes in the northeastern portion of the state and has been introduced into northwestern Pennsylvania in recent years. The color and the markings on the back are somewhat similar to the brook trout with its mottled pattern. The sides are spotted with light yellow or whitish spots but no red spots are present. This is a fish of comparatively cold, deep lakes. It does not run up streams to spawn, but spawns on shoals within the lake. Maximum length reported in Pennsylvania is about 32 inches.

The name of the brown trout (*Salmo trutta*) implies the color. The back is dark brown grading to a lighter shade on the sides. It usually has large black spots and may have reddish orange spots with paler halos around them. Maximum size in Pennsylvania is about 30 inches.

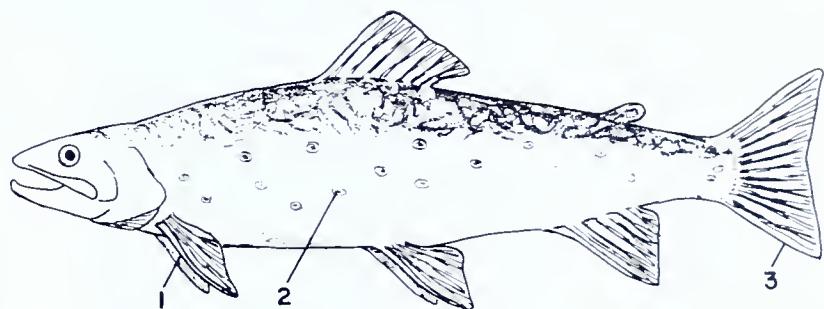
The rainbow trout (*Salmo gairdneri*) gets its name from the horizontal pink stripe on its sides. When first caught, this band reflects the light and gives the trout a rainbow pattern. Numerous small black spots are found on the sides, the back, and on the dorsal and caudal fins. Maximum size in Pennsylvania is about 30 inches.



Distinguishing the Trout of Pennsylvania

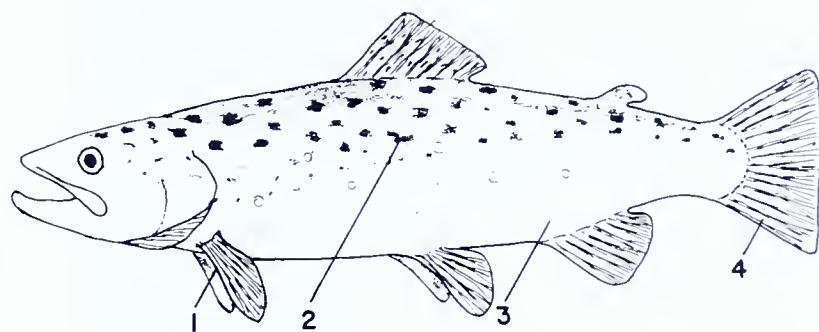
Brook Trout

1. Front edge of pectoral fin margined in white.
2. Usually red spots on yellow spots on body.
3. Tail square.



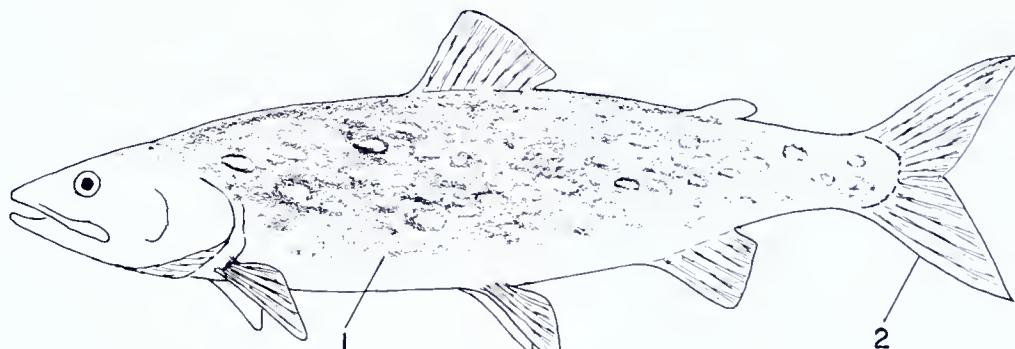
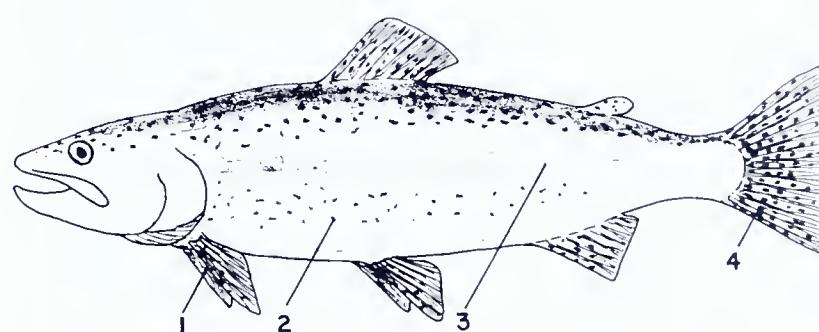
Brown Trout

1. Pectoral fins not margined in white.
2. Scattered dark spots on body, usually interspersed with red or yellow.
3. Body has brown color tone.
4. Tail with no spots or few scattered spots on upper tail.



Rainbow Trout

1. Pectoral fins not margined in white.
2. Usually many small black spots on body, never red spots.
3. Body greenish, adults usually with pinkish lateral stripe.
4. Tail heavily spotted.



Lake Trout

1. Never red spots, but yellow spots sometimes present.
2. Tail forked.

Do Fish Talk?

By DAVID GUNSTON

DO FISH TALK? Most people—especially anglers—would smile at the suggestion. But is it so improbable as it sounds?

After all, most other creatures have some form of communication with their own kind. Even the so-called dumbest animal can produce some form of noise at times, notably during courtship and mating, even if only a faint piping or grunt or snort. We know now that even bees talk by fanning their wings at one another at variable speeds and pitch.

Whales, long thought to be completely silent creatures, are now known to grunt and groan and make clicking noises under water, while recent work on dolphins has proved beyond any doubt that they are highly intelligent animals that are most voluble; conversing continually among their own kind with a startling repertoire of quacks, clicks and whistlings. In fact, dolphin language is at this moment being seriously studied by phonetics experts in America who hope to learn it themselves and, eventually, to teach captive dolphins something of our own form of speech.

Will men ever similarly set out to study fish talk? The chances are that they will, for it seems fairly certain that fish can and do produce quite a lot of noises, intended primarily as a means of communication with other fish of their own kind, in short, as talk.

There are two prerequisites for any form of talk: the ability to hear it, and the need to make it. In fish both these requirements are present. All fish can hear, if in a different way to ourselves. And almost all fish need to be in some form of touch with each other, not only during their breeding season, but also for keeping in shoals, migrating together and moving towards food together.

Fish possess an internal ear provided with the usual tubules and the same liquid-filled spaces as are found in other animals, including ourselves. But they have no external, visible ears and also—most importantly—no aperture in the head to connect the internal ear with the outside world, as have whales and dolphins.

Yet in all animals this inner ear has two functions: to hear with, and to maintain balance. It is this latter function which a fish's inner ear is believed to serve most.

For fish are more complex creatures than we tend to imagine. Take, for instance, their lateral line, in very many species a single grooved line running along either side of the body from head to tail, and containing various sense organs. This line acts as a device for detect-

ing variations of water pressure, and its owner could hardly get along without it.

The lateral line of many fish has regular perforations, and beneath it lies a shallow canal containing sense cells and nerve endings. With the constant aid of these the fish can tell even in complete underwater darkness how near it is to bank or rock or other obstacle, how close it is to other fish in the shoal or swimming close by, the exact temperature of the water and its rate of flow. It is also probable that a fish can similarly register vibrations entering the water that are more or less alien to its habitat—like the screws of a passing ship or motorboat, footfalls on the river or lakeside bank, even an angler knocking out his pipe on the side of his boat!

It is also most likely that the lateral line augments the fairly simple ear most fish possess by providing its owner with a lot of information about the doings and intentions of its neighbors in the water, including a sensitive reaction to the movements of a fin or tail close to it, as when perch are grouped in a school.

Thus equipped for the detection of sounds and vibrations in and near the water in which it lives, a fish must also possess some means of producing talk itself. Now although the harsh "bark" of a landed conger eel and the so-called "breathing sounds" of certain fish like carp are not true fishy voices, being merely air-conducted noises caused by the sudden expulsion of the oxygen and nitrogen gas from the fish's swim-bladder, many fish have the physical equipment for making sounds which clearly has no other purpose.

It will be realized that although water is a much more positive conductor of sound-waves than air, the sounds of fishy talk are different to those we ourselves hear in the air. With its ear (and lateral line) already in the water, a fish can register the sound vibrations traveling towards it immediately in the liquid inside its own ear. It does not have to effect the change from sound-waves in the air, as our ears do. So what with changing water pressures and currents and temperatures, plus the fairly constant "din" set up under water by almost all swimming creatures, from shrimps to sharks, a fish's hearing is probably more sensitive and more selective than we imagine. For the all-pervading hush of the underwater world is, as we now firmly know, a complete myth, as wartime asdic and sonar operations proved. There are always plenty of noises beneath the surface, and they are largely made by fish.

Some fish have scraping devices for making sub-

marine conversation, others are equipped with special adaptations of the swim-bladder that can produce water-borne signals. It is a remarkable fact that certain fish can vibrate their swim-bladders in the water so that sound-waves emanate from them, to be picked up by other fish at some distance. For instance, the spotted catfish has a couple of springy projections on the front of its swim-bladder and their action, aided by special muscles, causes a violent vibration of the bladder. A fish taken out of the water has been known to produce a noise audible a hundred feet away.

Sticklebacks can produce a scraping sound by rubbing the bottom of one of their dorsal spines against a bone, while the miller's thumb (that flat-headed, slimy little fish found in many spring-fed Pennsylvania trout streams) similarly rubs a spine against its gill cover. The Indian catfish scrapes its dorsal fin up and down the serrated surface of part of its backbone and makes quite a noise in this way on occasion, when it feels inclined. A similar sound is made when the common sunfish grates its upper throat teeth against the lower.

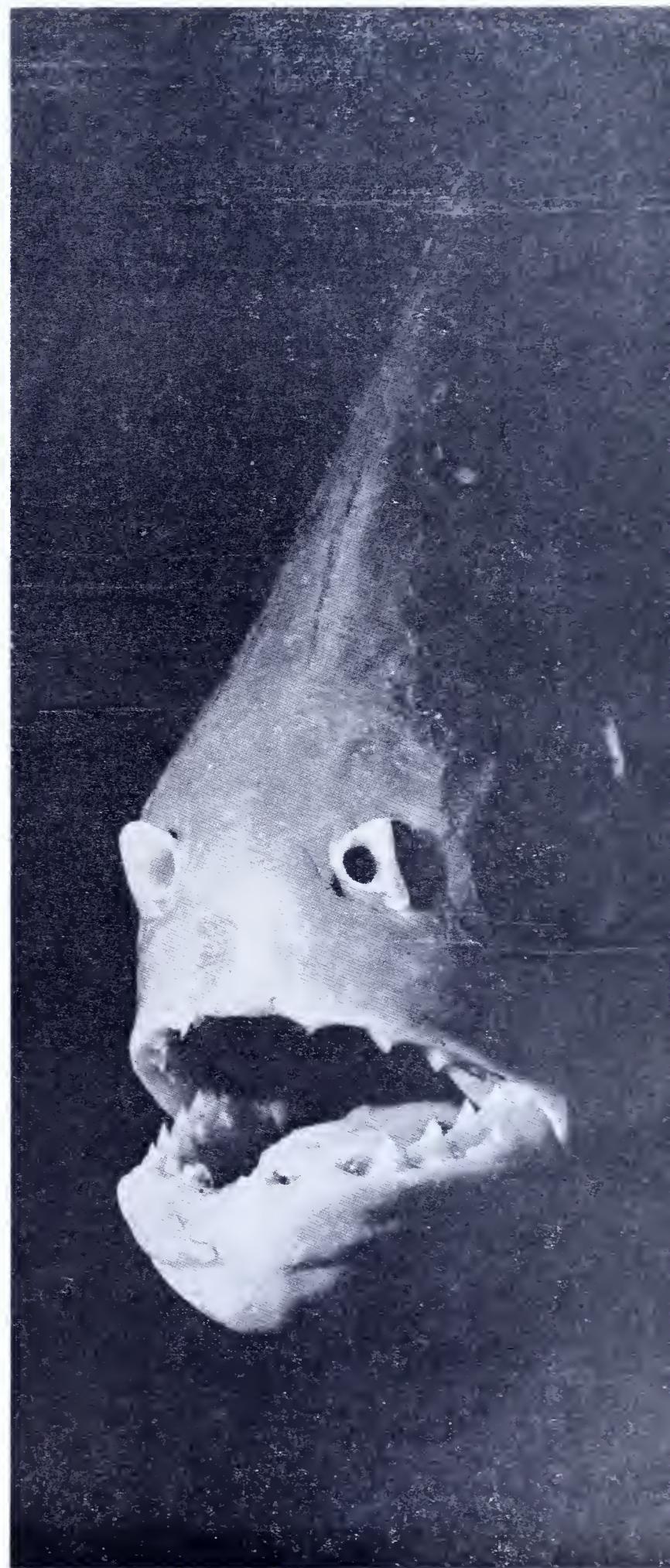
There are even fish with combined "voices" of mechanical scrapers and swim-bladder amplifiers. The drumming trigger fish creates a frictional noise with its bones and then broadcasts the sound via its swim-bladder. That curious fish, the croaker (so common along the Atlantic coast), probably makes its odd spawning cry in like manner, for even when produced fifty feet below the surface, it can be heard in the air by human beings. There is a possibility too, that in some of the spiny fish, the sharp grating sounds may be warning notes, intended to frighten off attackers.

Many other fish undoubtedly produce distinctive talk by contractions or vibrations of the swim-bladder, in a way we do not fully understand, any more than at the moment we are still not sure just how dolphins make their clicks and quacks. For no water creatures possess vocal chords as we know them.

Whales and dolphins and perhaps fish also are suspected of being able to find objects in the dark depths of the ocean, where the only known clue to their ability to do so is their sensitivity to waves of ultrasonic frequency, bounced back to their hearing equipment, radar-fashion. Although just how they detect the direction of a sound under water at any frequency is still undecided.

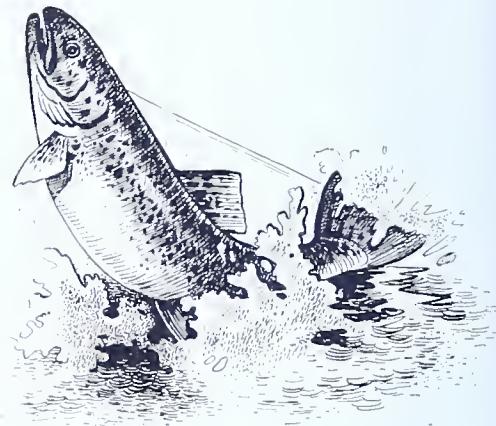
But this explanation alone does not explain why fish and all mobile water creatures need to make a noise, to talk. Sending out a single continuous "pulse" for sonic perception is one thing, but creating a variety of underwater noises recognizable only to other fish of the same kind is quite another. From our experience with captive dolphins and sharks we know that solitary captives tend to be mostly silent, whereas two or three or more confined together become immediately voluble.

Clearly, then, fish talk among themselves, often at perhaps a basic level of communication, but to a rigid pattern that makes sociability in the shoal or group easy, breeding untrammelled by distance, darkness or solitariness, and life not quite so dull and simple as might be supposed.



TWO GREAT ANGLERS DEPART

By
Sparse Grey Hackle



IN RECENT months, the sport of fly-fishing has been deprived of two of its greatest figures, George M. L. LaBranche and Preston J. Jennings. LaBranche created the distinctive American school of dry-fly-fishing and Jennings was the pioneer in American stream entomology for fishermen.

It is notable that the British were producing sound books about the water insects, which are important to the fly-fisherman, nearly a hundred years before we were, in America. The explanation is simple. Until the brown trout supplanted the speckled brook trout in the warming waters of the Delaware watershed, about 1912, there had been no need for an American stream entomology because the brook trout was a meat-eater easily caught on any fast-moving, gaudy lure and there was no need for the American fly-fisherman to study stream insects. He stuck to his wet Royal Coachman, brown or gray hackle, Parmachenee Belle or Silver Doctor regardless of the natural insect on the water, and did all right.

The brown trout was a horse of a very different color. He proved to be an insect-eater, never wholly forsaking this diet even when he grew large. He was cynical, suspicious and sharp-eyed; and if the angler's fly didn't resemble the brown trout's natural food of the moment, there would be no sale rung up on the cash register.

First the American angler turned to English flies which imitated the natural insects, and then to the English method of fishing them, dry fly. Neither was worth a hoot; our insects were not only different from those in England but we had far, far more different kinds, although far fewer in numbers; and the dry-fly method of the chalk streams—waiting until a fish came on the feed and then casting to it a floating imitation of the natural it was taking—wasn't suited to our rough, turbulent streams, smaller fish population and scanty fly life.

LaBranche found out what to do about it. He found that a natural insect could be imitated effectively, not necessarily by copying its size, shape and color (although he never denied that it helped if these were correct), but by its proper action. He shifted the emphasis from the fly itself to the way in which it was used—its presentation, which involved, in his own

words, "the position of the fly on the water" (i.e., on the same current that was bringing food to the fish) and "its action" (its completely unhampered natural float as it came down on the current). Furthermore, since our streams are, typically, too rough for the fisherman to detect a fish even when it is feeding, he fished in every spot where experience and judgment told him there ought to be a fish; as the English put it, he fished the water rather than the rise. And he carried this to the length of "creating a hatch"—deceiving the fish into the belief that a hatch of natural insects was beginning—by making as many as fifty consecutive, perfect casts to one spot.

It might be noted in passing that perhaps LaBranche took advantage of an optical law of which he wasn't then aware, the phenomenon of "the fish's window." Nowadays everyone is aware that the fish can see up through the surface of the water only in a limited circle right above him; outside that circle all it can see is the reflection from the underside of the surface, as from a mirror. A floating fly in the window can be seen in its detail of size, shape and color; outside the window, all the fish can see is the impression of the floating fly's legs on the surface.

The point is that in fast water a fish must start rising well before the fly gets to him or he will miss it. But as he rises, the size of his "window" diminishes. It is very possible, and I believe it is a fact, that if the current is fast enough, the fish has to rise so far ahead of the fly that he never has the fly inside his fast-diminishing "window" until the instant when fish and fly come together. Everyone who fishes dry on fast water has experience of "missed strikes" when his fly is not quite right, but not everyone realizes that they are not misses but last-second refusals by the fish as he discovers the fraud just as he is about to take. In that instant, when he gets his first clear look at the fly, he closes his mouth and turns away, creating the disturbance which looks like a rise but isn't.

This would explain why "presentation" alone is not nearly so successful on slow streams, and fails on the placid, rich Hampshire chalk streams on which the British dry-fly method was born.

Obviously the basis of LaBranche's method was good casting, accurate, well-controlled and faultless. And at

this he was a great master. George was an all-round sportsman—a really good baseball player in his youth, a smart, successful sailboat racer, and a phenomenally good wingshot. But above all he was a splendid caster, either tournament or stream, with the one-handed trout rod or the two-handed salmon rod, and with the bait-casting rod and jewelled multiplying reel. His "tip-work," by which the skillful fisherman lays his fly down with the necessary slack behind it to let it float freely, or shoots it across half a dozen varying currents into a pocket under the alders, was incredible.

Neither LaBranche nor his devoted followers had to pay much attention to the natural insect, and they didn't. Although he himself never said it and didn't believe it, his followers have always summed up the American school in one sentence: "It's not what you have but the way you use it; pattern is nothing, presentation is all that counts."

Unfortunately, this was true only in broken water, and not entirely even then. There were a lot of places even on the Brodhead and the Willowemoc where size, shape and color made all the difference. But when the baffled angler looked for a book to tell him what he needed to know about the natural stream insects, there was nothing. English books, and good ones, there were in plenty, but of little use since our insects were different from theirs.

In order to fill this gap an American artist, fisherman and prolific writer of how-to-do-it fishing books, Louis Rhead, came up with "American Trout Stream Insects," a unique specimen of American angling literature even though it was scientifically and practically worthless.

Apparently Louis had the ambitious idea of cornering the American dry-fly market by following Halford's example. That great British authority had selected thirty-three natural insects which, he said, the fisherman could profitably imitate. He had evolved thirty-three fly dressings in imitation of these insects, and numbered them. And he had approved the work of two commercial fly tyers who followed them faithfully. So all the angler had to do, if he wanted a killing imitation of, say, the Blue-Winged Olive (a common British natural much liked by the trout) was to write to Hardy's and order No. 17, or whatever it was. The fisherman got his fly, Hardy's got a profit, and presumably Halford got a commission.

It is revealing to note that although "American Trout Stream Insects" describes, pictures and names 95 American stream insects; and has a substantial, if primitive, chapter on fly tying, it carefully omits any fly patterns. Today Rhead's book is a collector's item and a curiosity.

It wasn't until 1935 that a scientifically sound book on the fisherman's insects appeared, a limited edition by The Derrydale Press which was reprinted in a trade edition thirteen years later because of its continuing popularity. It was not a comprehensive entomology, and it was written backward, in a manner of speaking. But it was the work of a writer and fisherman who,

although not a professional entomologist, nevertheless knew what he was talking about, and furthermore had had the good sense to have his book checked by several authorities on entomology before he sprang it on the public.

Preston J. Jennings selected a number of popular and effective "standard" artificial flies used in the Catskills, such as Quill Gordon and Light Cahill, and decided that they must be effective because they imitated natural insects. So he set himself to identify those insects and he succeeded. Furthermore, he classified them according to the accepted scientific methods so that they were unmistakably identified to anyone, anywhere in the world, who was versed in the international language of science.

Jennings must be acknowledged as the voice in the wilderness, the prophet of the true faith who first turned the thoughts of American anglers to serious consideration of the cornerstone of fishing—what the fish eats. I believe that if he had not created this interest there would have been no market for the first *comprehensive* as well as scientifically sound American angler's stream entomology, Charles Wetzel's "Practical Fly Fishing" which appeared in 1942. This trail-breaker appeared under severe handicaps. It was put out by a publisher of religious books, with so little "promotion" that it wasn't even listed in the catalogs consulted by booksellers; and since it appeared in wartime it had no colored plates, which obviously are a requisite for any such book. Nevertheless, it sold an edition of 1,900 copies and went into a second edition; and rewritten and expanded, came out again years later as "Trout Flies: Imitations and Naturals," which still enjoys a good sale.

So where were Wetzel's writings on stream insects first published? What magazine made him known to such a circle of real anglers that 1,900 copies of his first book sold entirely by word-of-mouth advertising? And what publication was, maybe, the first in America to publish intelligent, scientifically sound information about the fisherman's insects?

THE PENNSYLVANIA ANGLER, that's who.

I doubt that any honest fly-fisherman needs an excuse to take a drink. But if one were needed, I'd suggest that a toast be drunk to George M. L. LaBranche, creator of the vigorous, universal American dry-fly angling method; author in 1914 of the foundation-stone of American fly-fishing, "The Dry Fly and Fast Water"; pioneer with E. R. Hewitt and Ambrose Monell in dry-fly-fishing for the Atlantic salmon; and author in 1925 of "The Salmon and the Dry Fly" which not only presented dry-fly salmon fishing for the first time but also contained George's exposition of his method of making curved casts.

I'd suggest another toast to Preston J. Jennings and his pioneer work, "A Book of Trout Flies," and maybe an extra sip in honor of Gene Connett, who had nerve enough to bring out the book from his Derrydale Press.

And then we should all drink to the health of THE PENNSYLVANIA ANGLER, for obvious reasons.

Boating

Variety of Tasks for Outboard Motors

THROUGHOUT much of the world, governments from the national level down to the small village unit depend on the modern outboard motor as the keynote for an almost countless variety of services to their populations. On all continents, the outboard engine plays a vital and expanding role in police and military operations, scientific research and exploration, sea rescue, coastal patrol, ocean salvage, sanitation, animal conservation, fire fighting, ice breaking, transport of teachers and physicians—the list is almost endless.

Ever-increasing use of the outboard motor by governments and official agencies has followed a mechanical evolution that produced the gleaming, quiet-running power motor of today. Such post-World War II improvements as noise reduction, full gear-shift motors, remote controls, electric starting, greater horsepower, corrosion resistance, the alternator-generator, automatic choke, thermostat, and the new automatic gear-shift have brought about almost universal official acceptance of the outboard motor.

Continuing Trend

Many nations have equipped their land, sea, and even air forces with the two-cycle outboard motor, in continuation of a trend which had its start almost one-half century ago. As far back as 1915, records indicate, the British Army used outboard motors with great success during military operations on the Tigris River.

World War II saw a great upsurge in the tactical use of the outboard motor. Military models ranging from the small auxiliary motor to the large 50- and 60-horsepower models used to power assault barges and troop transports came into widespread use. Noise reduction came in for extra study on motors used to power the assault barges, when engineers designed motors that could not be heard above the sound of the surf.

Today in Europe and other areas of the world, the armies of many countries have achieved greater mobility at greatly reduced cost by the extensive use of the two-cycle outboard motor. Fast and sure transport of troops, weapons, and supplies is insured even across turbulent rivers and streams.

Many Uses

In all parts of the world, on all continents and in all climates, from the jungles of Malaya to the arctic wastes, the military and official civil use of the outboard motor is almost boundless.

Here are but a few of the many such uses of the outboard motor:

—The U. S. Coast Guard, operating in the Great

Lakes, uses outboards in special double-ended tugs utilized as ice breakers in harbors.

—Outboard motors provide the power for floating water sweepers that patrol the canals of Venice, clearing them of debris.

—Members of Denmark's air-sea rescue squad are rushed to the scene of emergency in aircraft, equipped with outboard-powered boats.

—New York City harbor police use outboards in emergency rescue operations in waters surrounding that metropolis.

—Jungle patrols of government troops in Malaya depend on outboard-powered longboats to patrol their areas by waterway.

—Malaria elimination teams in Laos use outboard-powered craft in their fight to eliminate the source of the disease.

—Flood rescue and beach patrol boats on all continents use outboards for patrol and rescue activities.

—Rivers and lakes of Malaya are restocked with fish fingerlings by conservation officials who operate from outboards.

—Patrol vessels of the Finnish Coast Guard are successfully powered by outboard engines.

—Outboards are used by the U. S. government to salvage experimental missiles.

—Game conservation officials on all continents use outboards for patrol and rescue activities.

—The Austrian Federal Army's Corps of Engineers uses outboards extensively, as does the West German Army.

—Educational instruction and medical services are possible in many parts of the Philippines only because of the outboard motor.

—Exploration is currently being carried out in such areas as Greenland, British Honduras, and Brazil by craft equipped with outboard motors.

Dear Editor:

In regards to your February 1962 issue of the PENNSYLVANIA ANGLER (see "Rowlocks-Oarlocks"). Rowlocks are a position to fit oars for leverage to power boat. When I was a lifeguard at Wildwood, N. J., we used single and double end clinker-built lifeboats. We used "toll pins" as rowlocks. These are just two wooden pins driven in top of gunwale. They were important when big breakwater combers overtook the boat. The oars could be bounced into the boat without injuring the occupants. Oarlocks are "Y" pins that hold oars moving with the angle of the oar blade and may have pins in them to hold oar from slipping overboard. This is very annoying!

R. J. A.
Philadelphia, Pa.

One of every 15 fatal accidents in the United States is a drowning. Each year about 2,300 Americans drown while swimming or fishing. About 1,300 persons a year die in boating mishaps.



Proper Propeller Pitch Helps to Get Top Performance From Motor

Propellers, seldom seen when a boat is in the water, are one of the most significant parts of outboard motors. This rather simple part has the important job of converting the energy produced by the powerhead to power in the form of thrust necessary to propel the boat.

Modern outboards are certified to develop their rated horsepower at a specified number of crankshaft revolutions per minute. Within certain limits, if the engine does not operate within its recommended rpm range at full throttle, it is likely that the propeller is not properly matched to the load it is being required to move. Failure to select a propeller of the correct pitch can cause poor performance, a great deal of irritation and even damage to the motor. Pitch, incidentally, indicates the distance that the propeller would move ahead through the water in one complete revolution, assuming there was no propeller slip. For instance, a propeller with a 12-inch pitch would theoretically move ahead 12 inches in one revolution.

Take the case of the man who last spring purchased a new boat. He had been operating a 40-horsepower Evinrude Lark on a 15-foot boat and getting good performance. But he decided he wanted a little more room, so traded it in on an open-cockpit 16-footer of lapstrake construction—a boat considerably heavier than the one he had been using.

His first use of this boat came when his family went camping with another family group. He was somewhat disappointed, but not too concerned, when his speedometer registered only about 23 miles per hour at full throttle with three people in the boat. He became alarmed when he had difficulty pulling an adult water skier from a deep water start, and then could pull the skier at a top speed of only 20 miles per hour.

Following his vacation, he took the rig to his marine dealer and recounted his experience. The dealer first checked the prop to see if it was properly balanced. Finding nothing wrong with the balance, he put the rig in the water with two passengers. At full throttle the speedometer indicated 23 miles per hour and his tachometer indicated the motor was turning only about 3,700 rpm. As the Lark develops its rated horsepower at 4,500 rpm, he knew the propeller was not correct for the load.

The dealer then put a lower pitch prop on the motor and immediately top speed jumped to near 29 miles per hour and the rpm moved close to 4,500. To make sure the pitch was not too low at minimum load, the dealer

took the boat out alone. Although top speed increased by slightly over one mile per hour, the rpm's did not increase significantly.

From these facts, a valuable lesson may be learned. If your motor does not rev up to within the recommended operating range, it is likely you are using a prop with too much pitch. You are trying to push too heavy a load too fast. Undue strain is placed on the motor if it operates below recommended range at full throttle. It will also fail to develop the rated horsepower you paid for when you bought the engine.

At the same time, a propeller acts as a governor on engine speed. If you are using a propeller with too little pitch, it is possible your engine will turn over faster than the recommended safe operating range.

The only certain way to test engine speed is by use of a tachometer. If, under normal load with the proper tilt angle and transom height the motor turns faster or slower than the manufacturer's specifications, the propeller is wrong for the rig. If the motor turns too fast, you need a prop with greater pitch to reduce the rpm. If it turns too slow, you need a propeller with less pitch.

A marine dealer is the best qualified man to help you check your propeller. His help in a situation such as this can assure you of getting full value from the motor you bought.

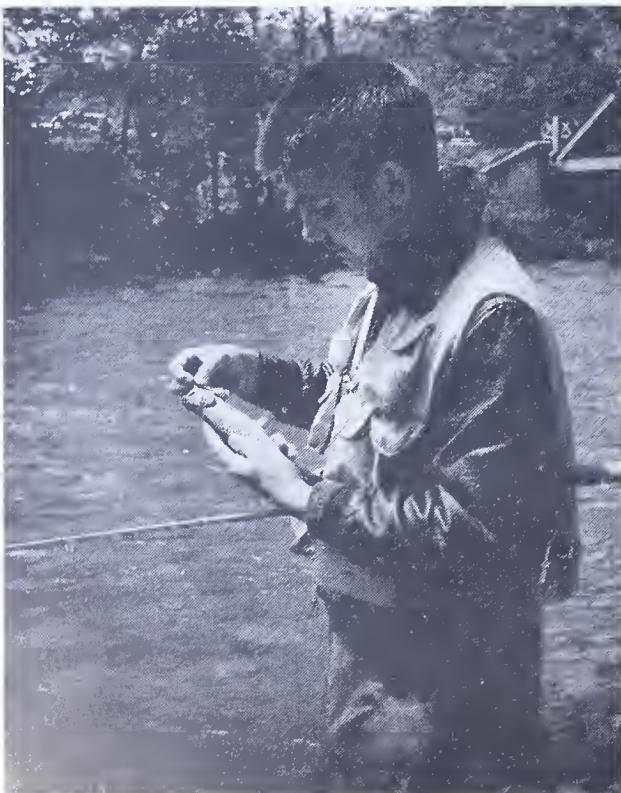
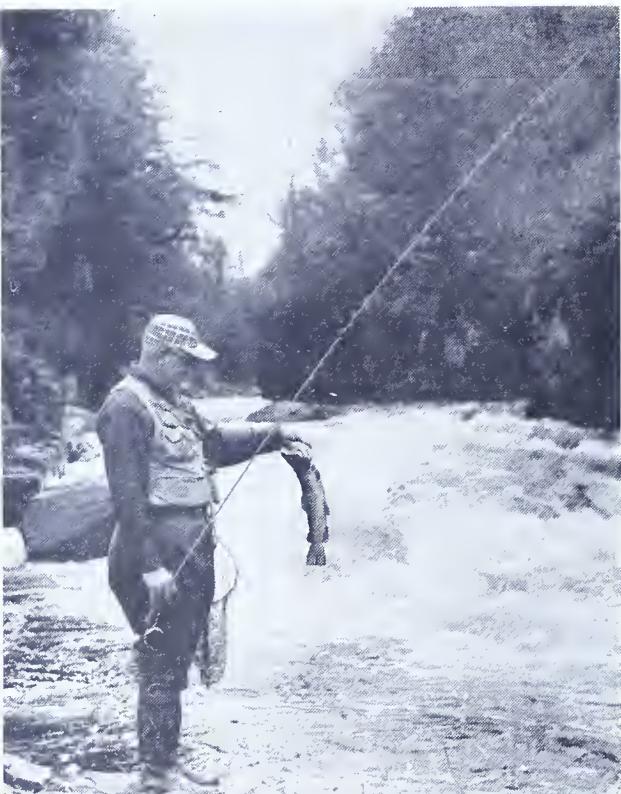


TROUT TONIC

The right selection...

gets results...

*from, under and around
bridges...*



in a pool by a waterfall...

almost anywhere...

but not like this...

PRESCRIPTION FOR SPRING

in smaller streams...



in the foam below a dam...



or, from the bank...



a man needs strength...

and a nap along the way...



to make his dreams come true at the end of a day.

STREAM NOTES

An unidentified trapper showed **District Warden Joseph E. Bartley** (Pike) his catch . . . a large golden shiner. Next day same man caught five smaller shiners. Later Warden Bartley ran into another sportsman who complained he couldn't catch a single bait fish in the same lake. Looks like these two fellows should start working together.

#

District Warden Richard Owens (Huntingdon-Mifflin) has three Department of Forests and Waters dams in his area stocked with trout. Often it takes the help of District Forester Ralph Schmidt and assistant Robert Lewis to work out the problems of stocking, posting, drawing down, etc. The fact the program goes off without a hitch indicates the cooperation between the two state agencies.

#

The catch of suckers at Koon Lake has been good, according to **District Warden William E. McIlroy** (Bedford). Of the more than 100 anglers out there trying, Sherman McDonald of Osterburg caught two suckers that weighed 8½ pounds. Two other fishermen had 27 suckers from the lake weighing an aggregate of 90 pounds.

#

Wayne Teil of Honesdale reports someone brought to his place of business a chain pickerel 33 inches long. It had been caught in a tributary of the Delaware River by an otter.—**District Warden Harland F. Reynolds** (Wayne).

#

District Warden Norman E. Ely (Erie) saw three boys venture out on lake ice with a sled loaded down with cardboard for a windbreak, fishing poles and buckets to take home the expected fish. They put up the windbreak and started to chop holes in the ice with Mom's meat cleaver. Watching this painful procedure he finally offered assistance, borrowed a nearby angler's ice auger and drilled several holes so they could wet a line.

#

Ice fishermen came upon a new bait at Glade Run Lake recently. The only fishermen able to entice catfish were those armed with cheese.—**District Warden Clifton Iman** (Butler and Beaver).

#

District Warden Clarence Shearer (Venango) said night fishing for crappie bass was very popular at Sugar Lake; best bait small minnows.

#

Kenneth Wilkerson of Waterman, Pa., braved foul weather on February 19 but came up with a 38-inch muskie from the Allegheny River at Trunkeyville Eddy.—**District Warden Norman Blum** (Forest and Clarion).

#

District Warden Lee F. Shortess (Lycoming) noted that Jack S. Eschenmann was a third place winner in the 1961 Field and Stream Magazine Fish Contest. Checking the contest results, Shortess found only 25 states of the 50 recorded winning fish and only 17 states recorded more winning fish than Pennsylvania. Only 13 states had winning trout within their borders and only 7 states could record MORE winning trout than Pennsylvania; these figures for both prize-winning and Honorable Mention fish. Since Pennsylvania's Mr. Eschenmann had a prize-winning fish, only 5 states bettered Pennsylvania in numbers of actual prize-winning trout. Only one state east of the Divide beat the Keystone state and this by only one trout. Pennsylvania beat 90 per cent of the U. S. A. with winning trout.



Paul Thompson, Tionesta with his three muskies—12, 13, 18 pounds; 36, 38, 40½ inches—taken in 1961 season as reported by Warden Norman L. Blum in February ANGLER issue.

Winter ice fishing, according to **S. Carlyle Sheldon, Warden Supervisor, Northwest Region**, was the best in years this past season and the sport is rapidly growing. Presque Isle Bay at Erie held the spotlight by a wide margin and Eaton Reservoir, near North East, Pa., was a close second. Perch were most popular with an added good showing of crappies, bluegills and walleye. A big surprise was the shortage of smelt in Erie Bay. For some reason, known only to the smelt, these fish chose to stay out of the bay this winter. A few were caught but only a fraction of the catch the season before. A large population of smelt has been found west of Erie affording good catches for those hardy enough to take it out on the lake.

#

Fishing was tops in the Shenango River below Pymatuning Dam in mid-February. A New Castle angler reportedly caught a 44-inch muskie that weighed 30 pounds. Many catfish were reported taken from the same area.—**District Warden Raymond Hoover** (Crawford).

#

District Warden Kenneth G. Corey (Warren) declares all the tackle stores look like "Christmas in Spring!" The rows and rows of bright silver and gold spoons and lures plus all the other colorful tackle always cause a bit of comment. Old-timers still choose the ancient tried and true lures but tackle clerks always say "just let someone catch a fish on a new fangled plug or lure and I'll hear about it pronto!"

#

Federal Dam Tenders Floyd Wildrich, Stanley Kominski and **District Warden Frederick Ohlsen** (Carbon) had to cut through 20 inches of ice on Bear Creek Reservoir recently to stock rainbow trout in the lake. Warden Ohlsen further reports a half dozen deer on a hillock watching trout stocking operations on Lizard Creek. **Special Warden Glovatsky**, assisting, said he has seldom seen spectators watching from the bleachers on this job!

CATCH MORE? KILL LESS!!

CLUB MEMOS

Fly tying is building up to top pitch as Lehigh County Club Juniors get last minute trout season flies ready for opening day. Sponsored by the **Lehigh County Fish and Game Protective Association, Inc.**, the classes this year have been picking up in interest and popularity under the direction of Adviser Raymond C. Moyer, club Junior Activities Committee.

The **Potter County Anglers of Galeton, Pa.**, are in the process of enlarging their hatchery according to District Warden Kenneth Aley (Potter). At present they have 28,000 trout for release in public waters. Of this number are 20,000 brook trout and 8,000 brown trout ranging from 6 to 8 inches. After completion of the new ponds they propose to raise 30,000 trout per year. The project is carried out with the Fish Commission furnishing the fingerling trout.

The Youth Group of the **Pennsylvania Fish and Game Protective Association of Philadelphia** celebrated its first anniversary at a Youth Night affair sponsored by the club on March 8. Aims of the group: 1) Promote safety in handling firearms; 2) Promote good sportsmanship; 3) Promote conservation of our God-given resources through wise practices and restoration and 4) Develop a deep and abiding love and respect for the great outdoors.

The **Lehigh County Fish and Game Protective Association** has scheduled its Spring Booster Meeting on April 10 at Cusle Garden in Dorney Park, Allentown. The club has invited top Fish Commission personnel on a tour of the club's trout and steelhead nursery facilities and other waters in the area followed by a reception and dinner.

John E. McGowan, Archery Rangemaster of the **Delaware County Field and Stream Association**, has been signing up archers of the club since March 1 for the "heaviest carp" contest. The contest, which starts officially on April 1, will require an entry fee of 50c. A trophy will be awarded at the end of the season. Fish will be weighed, according to McGowan, and entered on a piece of paper . . . also weighed and returned . . . the paper . . . not the fish!

Newly elected officers of the **West Chester Fish and Game Association** are: Robert Brehm, president; Monroe Coldren, vice president; J. Clyde McMullen, secretary; and Fred C. Dutt, treasurer. The club will be celebrating its 25th anniversary this year. Some of the activities planned are: Annual trout meeting, April 12; Bass meeting, June 7; Fishing Rodeo, August 25.

National Watershed Congress To Plan Nation's Watersheds

"Planning for the Nation's Water" will be the theme of the 9th National Watershed Congress at its meeting in Columbus, Ohio, May 7-10. The Congress recognizes that more people are concerned about—more people are doing more about—water resources than ever before. The program of the meeting covers the latest developments and trends on this vital field. It provides insight into the forces that shape land and water resource programs at local, state and national levels.

Memo to Anglers

Commonwealth fishermen are reminded that the 1962 fishing licenses, which became effective March 1, are to be displayed on an outer garment at all times while the license holder is fishing. This law was enacted by the General Assembly and became effective September 12, 1961.

The possession limit of bait fish and fish bait is 35 bait fish or 35 fish bait, or a total of 50 combined. A typographical error in the 1962 Fishing Regulations and Summary of Fish Laws indicates the maximum of one class to be 30 instead of 35.

State Park Cabin Rentals Accepted After April 1

Applications for the summer rental of cabins at Pennsylvania's state parks will be received by the Department of Forests and Waters after April 1. No application for the summer rental period, June 1 through Labor Day, will be accepted which is postmarked prior to April 1.

Cabin rental application forms may be obtained from the Department's offices in Harrisburg or from District Foresters and Park Superintendents' offices throughout the state.

The application for rental must be directed to the park office at the particular state park where a cabin is desired.

The Department's State Parks Division reports that a total of 163 cabins are available for the 1962 summer season and are distributed among 11 parks.

The eleven state parks with cabins for rent are as follows: Black Moshannon—Centre County, Clear Creek—Jefferson County, Cook Forest—Clarion County, Cowans Gap—Fulton County, Kooser—Somerset County, Linn Run—Westmoreland County, Parker Dam—Clearfield County, S. B. Elliott—Clearfield County, Promised Land—Pike County, Ralph Stover—Bucks County, Worlds End—Sullivan County.

\$1,750 Paid for Poisoned Fish

An upstate tannery has made a voluntary contribution of \$1,750 to the Pennsylvania Fish Commission fund, as the result of the poisoning of fish and fish life in Bowman's Creek, near Tunkhannock, in late January.

Warden Stephen A. Shabbick who discovered the pollution said it had completely obliterated all fish and aquatic life in the creek between Noxen and Eatonville. Shabbick and members of the Tunkhannock Sportsmen's Club counted 291 legal brown and rainbow trout up to 21 inches; 50 suckers from 8 to 14 inches and countless minnows, fingerlings and yearling trout lying along the stream.

Tests indicated there were still fish above Noxen and Commission biologists will make a new survey of the stream for possible re-stocking this season. The tannery causing the fish losses is now closed.

TROUT TRAVELS

Over the past ten years, one bit of knowledge that has helped me take many a sizable trout has been the ability to predict their whereabouts at certain times of the year.

Out of one particular pool, I have taken a respectable number of brown trout ranging from two to four-and-a-half pounds. All of these trout, with one exception, were taken in the period between June 15 and June 30.

On another stream I have worked a certain upstream stretch early in the season with indifferent results. Then I have gone back later in the season and taken trout after trout from the same water.

If you have devoted any amount of time to a single stream you have probably noticed that the productive stretches keep changing from week to week. Obviously, if you can anticipate the location of these "hotspots," your chances of making a good catch are materially increased.

Actually, there is no great trick involved in being able to predict the general whereabouts of trout at specific times. Their movements upstream and down vary little from year to year. Viewing the trout population as a whole, you can usually determine the approximate population center with reasonable accuracy.

Early in the season, when streams are running bankfull, and temperatures are favorable, most of the stocked trout are to be found within a mile or so of the pools and sections in which they have been released. The streambed and carryover fish remain in or close to the deep wintering holes, usually in the lower reaches of the stream or wherever big, deep holes are to be found.

Commencing about mid-April, there is a general upstream movement of trout following the upstream progression of the fly hatches. This movement is slight, however, compared to the mass migration which gets underway in May. This major upstream movement invariably follows a raising of the stream level after a heavy rainfall or a series of rainy days.

By early June a high percentage of the entire trout population will be strung along a stretch of stream which we might refer to as normal holding water. Within this stretch of water the trout find ample food, good cover, constancy of flow, and a favorable temperature range.

Within these same sections there are, of course, favored pools and glides which, year after year, attract the largest trout and the greatest numbers of trout. If you take a nice trout from a certain location, like beside a half-submerged log, there's an excellent chance you can duplicate the performance later on.

Within any stream, the largest trout take over the best hideouts and feeding locations. As these fish are removed, others move in to take over their spots.

The surest way to get to know a stream is to maintain a detailed fishing diary. After several seasons, cross-check your results. This should provide the tip-off as to the best pools and stretches during specific weeks and months.—*Jim Hayes*



BIG TROUT AND

THE STREAMER

Streamers are designed generally to represent the many types of bait fish which inhabit trout waters, the dace, the shiner and the muddler. As a trout grows larger, he generally wants a good mouthful when he feeds, hence a preference for minnows of some sort. That doesn't mean that a large trout can't be taken on a nymph, or dry fly. Even very large trout at times can be seen sucking tiny flies from the surface of a stream. But by and large, the big trout is apt to be enticed more often by a fly representing a minnow than by flies representing other forms of trout feed. I'm not suggesting that you fish streamers over fish rising to shad flies for instance or other times when the trout are feeding selectively on one insect form or another. They do sometimes work at that time, too.

Tackle for streamer fishing need not differ from conventional fly-fishing tackle. Most experts recommend a fly rod at least 8½ feet long with matching torpedo-taper line, but that tackle seems too specialized for general fishing. The majority of fishermen today don't go out with the idea of using only one type of fly or lure for an entire day. A shorter, lighter rod is easier on the arm and will cast a streamer nearly as efficiently as the longer rod. The greatest disadvantage of the shorter rod is when wading deep and casting far. As a rule I prefer shorter casts relying on a sneaky approach to get me in position for an effective cast to a hot spot. The long cast has its place, but generally a trout is more difficult to hook on a long cast, so I prefer the short cast as the standby, with only the occasional long casts.

Methods of fishing the streamer are varied and there is no one "best" way to fish the streamer. A good streamer fisherman has many methods at his disposal, and uses each as the conditions change.

Start your streamer fishing by casting diagonally down and across stream, twitching the rod tip to impart more action to the fly. Follow the fly with your rod half raised, so that the rod will "take" the strike. Generally, a very slight raising of the rod will set a well sharpened hook. If no strike is forthcoming as the fly straightens out below you, pause before making the retrieve. Give the fly a few twitches to tantalize any watching fish and then slowly bring the fly back toward you in a series of short jerks and pauses, ready at all times for a quick strike.

On open streams, where the bottom is not covered by water weeds and grasses, I like to fish my streamer as I would a nymph. This is short cast fishing at its finest. I try to cast above the spot where I suspect a trout to be and allow the fly to drift naturally downstream, keeping alert at all times for the telltale twitch of the line as a trout takes. In some instances you can watch the fly instead of the line, and see the trout as he sucks in the streamer. I start this drift fishing with only the weight of the hook to submerge the fly. If the trout are not real active and the shallow drifting fly will not bring them up, I add a small piece of strip lead to the leader. I then want just enough weight to take the fly close to, but not on the bottom. Occasionally the fly will stop on the bottom, and a slight twitch of the rod tip will start it moving again.

I feel that ninety per cent of the time the streamer is retrieved too fast and taken from the water too quickly. I'm as guilty of this as the next angler. Generally the streamer should be fished slowly and brought as far back toward the fisherman as possible before the fly is lifted for another cast. On many occasions I've lifted the fly from the water because I felt that it was far enough past the spot where a trout should hit, only to have a big fish show his back out of the water looking for a fly that wasn't there. Once at dusk, while fishing the Letort with a streamer, I brought the fly nearly to my feet before taking it from the water. As it left the water a monstrous brown trout glided up on the moss with half his back out of water. How big? You'd think I was lying if I gave my estimate. And that hasn't been the only time. More than once I've pulled the fly away from a big fish (not knowing he was there) only to have the fish swirl and roll all over the surface like he was actually hooked on the end of a line. That's an unforgettable experience. A big trout usually takes longer to make up his mind about hitting a streamer, so fish slowly, and fish each cast to the limit.—*Ed Shenk*

*Without apparent rhyme or reason
Men change their clocks twice every season;
Meanwhile, the sunrise and the rooster
Keep the same schedule that they used to.*

Field and Stream Magazine Praises North Branch of Susquehanna

"Take the North Branch of the Susquehanna in Pennsylvania. There's a fifty-mile run between Towanda and Tunkhannock that has all the attributes of a first-class float. Yet it's within spitting distance of Scranton. For the angler with a yen for smallmouth, walleyes, and panfish, it's a civilized paradise. When I was there three years ago, a boat rental, including the trucking, cost less than \$5. I brought along my own motor, but could have rented one at a nominal fee. Although I caught no trophy bass, I had plenty of fun bugging the shorelines for fish up to 3 pounds. Surely, it was the best of angling and a memory to be grateful for.

"One thing that makes float fishing especially productive is that all rivers have just so many access points that a man on foot can use. An angler can walk or wade only a limited distance from the parking lot; as a result some stretches of water are relatively unfished. Even if there is a boat livery handy, a one-day angler can't cover too much river. It's also true that while many big streams are paralleled by highways, you will often find that much of their length is away from the road."—from *Get Off the Road* in Field and Stream (Feb. '62 issue) by A. J. McClane.

Michigan Considers Cigarette Tax Source for Recreation

Michigan's Conservation Commission is considering a proposal to seek a one-cent tax on cigarettes as a new source of revenue for picking up the pace of outdoor recreational development. The proposal, prompted by the Conservation Department's growing financial problems and Michigan's expanding leisure-time needs, is expected to be approved in a formal resolution by the Commission. It is patterned after Wisconsin's new penny-a-pack cigarette tax which has launched a 10-year \$50 million program in recreational improvements. Conservation Department officials estimate the proposed one-cent tax would provide \$9-10 million annually to finance a broad recreation program covering state parks, state forests, public fishing sites, and state game areas.



WORM FISHING

FOR TROUT

Since it is impossible to cast even a toughened worm like you would a fly, you must, to get distance, depend on the length of both your rod and line. And, of course, your cast consists of an underhand swing or from side to side. With an 8½- or 9-foot rod and the same length of combined leader and line you should not experience too much trouble especially on an open stream. Use the lightest possible leader consistent with the size of the fish you expect to encounter. A three-foot length is often adequate, although longer leaders are necessary in very clear water.

For no reason at all except that they have always done it, altogether too many worm fishermen fish downstream, in the vast majority of cases permitting the worm to wallow along with the surface movement. True, trout are taken by this simple method, but because of its lack of natural appeal, unless a trout goes for it at once, it certainly won't later. To achieve naturalness use only enough lead to permit the worm to bump along the bottom.

Try casting the worm upstream. Its advantages are obvious. 1) Since fish nearly always rest heading into the current, they can't see the approaching fishermen, 2) dislodged sediment can't herald your approach, 3) with a sinker befitting the current, the worm will always roll along the bottom. The correct amount of lead is important. Experiment until you get the desired effect.

Another effective worm cast is quartering across the stream; casting across and slightly above your position. Both the current and your slow retrieve will combine to move the bait naturally. Again, lead is important.

In worm fishing the hook is probably the most important part of the tackle. First, it should be of a type that best holds the worm, and secondly, one that is least likely to injure the fish when removed from it.

Types of hooks and riggings are surprisingly numerous.

A hook that has gained favor with worm fishermen is the claw bait holder type. This has the bent point and two small barbs on the back of the shank, the latter to help keep the worm in place. A number 2, 4, or 6 snelled claw hook is probably the most suitable for trout.

A spinner-worm combination is a killer for many kinds of fish. When trout refuse worms the addition of a spinner will often give them the urge.

What about worms toughened, scoured and cleaned in sphagnum moss? All worm fishermen think them tops. And there isn't a fisherman who doesn't have a favorite method. However, have you ever made a burlap and sphagnum roll of worms? Lay a piece of well soaked duck material on a piece of burlap of the same

WORMS IN THE BASEMENT

For raising angleworms indoors, a wooden box about 3 feet long, 2½ feet wide and 1½ feet high is recommended. Remember to seal the seams of the container so that the worms cannot escape. The top of the box should be fitted with a frame covered with hardware cloth. Having the frame hinged to the box and fastened with a small screen-door hook makes a very convenient setup. Several small holes should be drilled in some part of the bottom of the box for drainage. The holes should be covered with fine-mesh copper screen that is tacked to the container. If the worm box is in such a place so that it cannot be drained, place small cans under these holes to catch water. If the culture material has excessive moisture that cannot be drained it may sour and kill the worms.

The preparation of indoor cultures is the same as for outdoor boxes. The same feeding and watering procedures also apply.

About 21 days after stocking the worms may be ready for harvest. Dump contents of culture box on smooth table and rake material into cone-shaped pile. Give the worms a few minutes to work down into the pile and then begin raking material from the tip of the pile and replacing in box. This is the material that will have a lot of egg capsules and should be placed in a newly prepared box.

Culture boxes should be kept fairly dark, as earthworms work in darkness. Boxes should be moist but not soggy.

When worms are being used on the lake or riverbank, try carrying them in a small cloth sack filled with sphagnum moss. Dampen sack whenever necessary.

History teaches us the mistakes we are going to make.

Our world of the outdoors changes continually, sometimes overnight. You cannot put a permanent value on nature. The real values are those that remain with you, give you happiness and enrich your life.

Space travel is going to separate the men from us cowards.

size, say 3 by 4 feet. Place a one-inch layer of soaked and well-wrung moss on the duck. Scatter your perfect (uninjured) worms on the moss and then loosely roll the whole, making sure to tuck in the ends. After wrapping it securely with twine, tie it to the front bumper of your car and then take off for your favorite fishing ground even though it may be a thousand miles away. When you stop for gas get the water can and give the roll a light wetting. When unpacked the worms will be as lively as snakes.

And whether you are a devotee of flies, plugs, worms or minnows, a good sportsman will always kill fewer fish even if he catches more.—*Excerpts from an article by Nick Casillo.*

BIOLOGY BRIEFS

Fish Odor Isolated

Canadian scientists have isolated a substance that helps give fish their odor.

Dr. Herman Kleerekoper and co-workers at McMaster University separated an amine, an active substance, from the scent of trout. The substance was added to water containing a sea lamprey, causing a sudden burst of activity as the lamprey searched for its prey.

Scent substances given off by fish occur in such small quantities that thousands of gallons of water have to be processed in order to isolate and identify them. This amine was prepared in crystalline form, Dr. Kleerekoper told the Pacific Science Congress in Honolulu.

The action of the amine on sea lamprey was studied with an automatic recorder in McMaster University laboratories, Hamilton, Ontario, Canada. The Canadian scientist hopes the identification of scent substances will shed light on the relationship between predator and prey, and the role of smell in fish migration and fish schools.

IN A WEEDLESS margin of the lake three male sunfish had fashioned nests on the sandy bottom so close to the shore that we could watch their activities with ease. Each fish used his caudal fin or tail as a sort of broom which was apparently his only tool for rounding out a basin-like nest. Females visited the nests briefly, just long enough to deposit the eggs that were fertilized as gravity took them to the bottom. The males were tirelessly faithful, spending weeks in the immediate vicinity of the nests until the eggs became the tiniest of new sunfish. On several occasions we lowered temptingly-fat night crawlers on barbless hooks, but faithful fathers paid them no heed.

Over where the lake bottom was given over to water vegetation were three male bullheads out on what seemed to be round-the-clock strolls with active, numerous classes. We didn't see the nestmaking, only the old man on duty as baby-watcher. All three were 2-3 pound blackish-green fellows with lighter bellies.

Occasionally another bullhead would appear on the scene as though checking up on activities; we supposed it was the female stopping by to see if everything was under control. It was an amazing study of devotion on the part of the sex which is often considered the poorer parent.

It made quite a picture. Each bullhead would advance slowly through the water and his young would circle round and round him as though he were a curious shaped planet with hundreds of inky unmoon-like moons. Or he would speed up and the young would stream out in an ebony comet-like tail behind father bullhead. In no time the tail would break up into satellites once more that would revolve orderly around the sire.—Carsten Ahrens



—Johnny Nicklas photo

Standing Room Only!

The population explosion affects not only people but other animals. Although the food supply may be adequate, there must be sufficient room to maintain healthy populations. Fish in particular are subject to a so-called space factor. When trout become too thick in hatchery ponds, even with adequate food, the growth slows and the fish become subject to disease. Soon a mortality occurs and numbers dwindle until there is adequate *lebensraum*—living room.

When trout are transported for short distances the optimum practical load would be about a pound of fish to a pound of water. Obviously, it is useless to pack fish into an area like sardines or they will all die, especially trout because everyone knows that they need the best of conditions.

Rainbow trout at Benner Spring Fish Research Station defied this law of space for 14 months. Ever since they have been less than an inch long they have been confined in a 6½ quart jar. Occasionally one dies, but only because movement is impossible and one must go so that the remainder can grow.

On January 30, 1962, 208 of these fish weighing 7.9 pounds were thriving in 5.9 pounds of water. In other words, about 8 pounds of fish in 3½ gallon of water. The jar on the right of the accompanying photograph shows just how little space these fish have. When this picture was taken, they weighed 7.4 pounds. Nineteen days later they weighed 7.9 pounds. They are still growing but as the photographer said when he took the pictures, "I'm wasting my time. Nobody will believe it. It's impossible!"—Keen Buss, Fishery Biologist, Pennsylvania Fish Commission

Make Your Own Leaders

There are five basic items that make up the fly-fisherman's equipment; namely, rod, reel, line, leader, and of course the fly. The most neglected and misunderstood of these items is the leader, although it is *the* most important link between angler and fish. An angler can spend many a dollar for rod, line, and flies to obtain a balanced outfit, but all too many times, neglect that important $7\frac{1}{2}$ feet to 12 feet between his tapered fly line and his custom made flies. A leader can be the difference between a balanced outfit or one that is completely out of proportion, resulting in bad casts and bad tempers.

The obvious purpose of a leader is to reduce the visible connection between line and fly, but its greatest asset is to deliver the fly softly upon the surface of the water, where the trout cannot see the splashing line behind it. To do this you would think that the lighter the leader the less chance you risk making a disturbance. The important key is *balance!* That is why we have tapered fly lines and that is why we have tapered leaders.

I am not talking about the so called "standard" tapered leaders you buy in any sporting goods store. They are, for the most part, much too light to be effective in fly-fishing. And this is why. The point of your line is a minimum of .025 inch (size F1) and it could be up to .030 if you cut off the first few feet of your tapered fly line. The majority of these leaders have diameters of from .011 inch to .014 inch at the butt section. For the uninformed, the butt section is the nearest portion of the tapered leader that is tied to the line. Anyone can see that the .011 inch difference is too much resistance for the fly line to overcome. It is the writer's opinion that until manufacturers of leaders recognize this fact, the wise angler will do well to avoid these almost useless tapered leaders.

A simple and rewarding solution to this problem is to make your own tapered leaders. Not only can you make them in any length you desire, but you can taper them to meet any situation you may encounter on a trout stream. There are only two knots that you need to know in tying leaders; the blood knot is used to join the material, and the perfection loop knot which is used to join to your line. Learn these two knots and leader making becomes an easy and worthwhile chore.

Of course you need leader material and this can be cheaply purchased at most sporting goods stores. It is usually packaged by spools or packaged so many strands to a package. Either one will suffice but the spooled material is generally cheaper and easier to work with. The diameter of the material is usually labeled by size and rather than confuse you I will mention both size and diameter. The size will be in parentheses, and it is standard. The butt section mentioned earlier should be .021 (0/5) or .019 (2/5) and the leader is tapered down in the following diameters: .018 (3/5), .017 (4/5), .016 (5/5), .015 (6/5), .014 (7/5), .013 (8/5), .012 (9/5) and then the remaining material is designated by X and they are: .011 (0X), .010 (1X), .009 (2X), .008 (3X), .007 (4X), .006 (5X). Anything lower than this (6X, 7X, etc.) is for the experts as 5X tests out at about 1 pound. Any potential leader maker that purchases one spool each of the above material is ready for business.

I believe the reason many anglers don't tie their own leaders is because they have no idea how much material to use to make tapered leaders. Here are four basic leaders that will increase your fishing pleasure whether you fish drys, wetts, nymphs, or streamers or all of them:

1. 24" of .019—20" of .018—12" of .017—10" of .016—8" of .014—8" of .013—8" of .011—8" of .009—24" of .007 (4X).

TYING FLIES

One of the simplest wet flies to tie, yet one of the top producers from the beginning to the end of trout season is the hard bodied ant.

Ingredients to tie this fly consist of a hook, one hackle feather whose color matches that of the body of the fly, and silk or nylon thread from which the body is constructed.

Picture a natural ant if you will, with the bulgy body segments, and the slender waist. Start the tying thread at the bend of the hook and wind it toward the eye of the hook stopping about half way between the eye and the bend of the hook. Make repeated turns of the thread over this part of the hook until the thread has built up to represent the back segment or abdomen of the ant.

Next attach the hackle feather where the thread ends and the bare hook begins. Wind three turns only as you would in tying a dry fly. This hackle will represent the legs and the thorax, or middle segment, of the ant body. Tie off the hackle and continue with the thread to the eye of the hook. Make repeated winds of the thread again until another bulge is formed. You'll now have a fly which will be broken up into a bulge, hackle, then another bulge.

Give the bulges about three coats of cement, being careful to keep the cement off of the hackle.

While the ant can be cast across stream, or across and down stream with excellent results, it is generally cast upstream and allowed to drift back naturally as one would fish a nymph. Color can be either black or cinnamon, hook sizes ten to twenty, with size fourteen being the workhorse of the assortment.

What more can you ask of a fly? It's simple to tie and the trout love it.—*Ed Shenk*

This leader is a little over 10 feet and is the one I use most of the time. If a .006 (5X) "tippet" is required for low stream fishing, it is a simple process to shorten the .007 and then add the required amount of material. This is a fine leader for dry fly fishing.

2. 16" of .018—16" of .017—16" of .015—16" of .014—7" of .013—7" of .011—7" of .009—18" to 30" of .008 (3X). This leader will measure $8\frac{1}{2}$ feet to $9\frac{1}{2}$ feet, depending on the amount of tippet added. This is a very good wet fly and nymph tapered leader. It can also be used in dry fly fishing when size 10, 12, 14 dry flies are used.

3. 10" of .015—6" of .016—6" of .017—10" of .018—10" of .017—10" of .015—10" of .013—10" of .012—10" of .011—20" of .009 (2X). This leader measures $8\frac{1}{2}$ feet and is used for streamer fishing. Notice that the heaviest material (.018) is almost in the middle of the leader. The reason for this is that it acts as a "hinge" when casting the heavier streamers. This leader can also be used when casting large bivisibles, fan wings, hair wing dry flies.

4. 24" of .018—24" of .016—12" of .014—12" of .012—10" of .010—10" of .009—18" of .008. This leader measures about 9 feet and is used in casting in heavy winds. It can be used in wet and dry fly fishing, especially in a strong head wind.

Before the season starts, get out and buy yourself some material and make up a few of these leaders. After they are made, mark them as to length and tippet size and you are all set to enjoy a more enjoyable day astream.—*William Reed*

CHANGED ADDRESS? ? ? Promptly notify Pennsylvania Fish Commission both old and new address.



The Feminine Angle

By MARION LIVELY

Men! . . . Have trouble getting away on those fishing weekends? . . . Feel guilty leaving your wife at home minus not only you but also the car? Why don't you try taking her along? It's just possible that, if you start her off right, she may love it. Throw away that guilt complex—let her worry over the long range weather forecasts and pack up the food. But one word of warning: if you do get her interested in fishing, *never*, no matter how expensive the rod, never shout as she falls down a bank or trips over a tree root. "Watch your rod!" Count to ten, rush over and inquire after her health. Let her think that look of concern is for her, not the rod.

Mention fishing to a woman and her first reaction is invariably, "Ugh, worms!" and, "It's so boring just sitting there." Fly-fishing eliminates both of these problems. Since casting a fly is a matter of timing rather than brute strength, a woman can learn to cast adequately in a short time providing she has a light well-balanced outfit. Too many women get discouraged simply because they start off with a heavy, stiff rod or some limp switch that would be impossible for even an expert to use well. Find a nice light outfit—a rod about 7½ feet and 3½ ounces, a lightweight reel, and a good floating line to match the rod. File down the rod handle to fit her hand, teach her the two essential knots, one for tying on the fly and the barrel knot for tying on the tippet. A few practice sessions in the back yard and a couple of outings at a good bluegill pond and she's ready for trout. This involves boots or waders. These now come in very light weights, ideal for women. The stocking foot wader or boot with a separate wading shoe usually is a better fit and gives more ankle support.

Now for the supreme sacrifice: for the first few trips, forget your own fishing and stick with her. Show her where to look for trout, where to position herself to get a good float, scout a riser for her to cast to. Make every effort to see that she at least raises a few fish. After that she's hooked and you can go back to your own fishing. Next trip, she may be out on the stream while you're still stringing up your rod.

Fly-fishing is a wonderful sport for women. It can be just as strenuous as she wants it to be. She can take off and fish upstream for miles or she can spend all day on one nice pool. If fishing is slow, or it's hot, or she's tired, there's always a log handy to sit on, there are wild flowers to investigate, birds

'Ding' Darling Dies:

Jay N. "Ding" Darling, cartoonist for nearly half a century and a conservationist all of his life, died in Des Moines, Iowa, on February 12. Winner of Pulitzer Prizes in 1924 and 1943, Darling, 85, was a tireless champion of natural resources. His accomplishments leave no doubt why he has been called the "best friend that ducks ever had," the Wildlife Management Institute reports.

Darling was instrumental in obtaining the Migratory Bird Hunting Stamp Act of 1934. He designed the first duck stamp. During his year and a half with the Biological Survey he helped get \$6 million for launching the national waterfowl refuge system, initiated the National Wildlife Federation, organized the first North American Wildlife Conference. He was responsible for developing the American Game Protective Association into the North American Wildlife Foundation and the American Wildlife Institute, forerunner of the Wildlife Management Institute. He established the Cooperative Wildlife Research Unit program, now operating at 16 land grant colleges and universities to train wildlife scientists and to undertake essential research.

and animals to watch. Ever lie back and look through the forest leaves and listen to the quiet? It does wonders for the disposition.

So—try taking your wife along; you may even like it. Besides, she's probably a better cook than you are and wouldn't it be nice to come back to camp at nightfall to find hot stew and dumplings, and maybe even strawberry shortcake, instead of a cold can of beans? It would be nice if you would help with the dishes, though. At least I think so; I don't really know because I always do them—just to be sure they'll let me come along next time!

It's better to build boys than mend men.



EDITOR'S ANGLE

Dear Sir:

Enclosed is check for three more years of the PENNSYLVANIA ANGLER. I received current copy today and read it from cover to cover. It is getting better all the time. I have received it since the first copy was issued. Am now 78 years young and still fish when weather permits.

Edward R. Sporer
Scranton, Pa.

Bless you, Mr. Sporer, for nice comments from a real veteran angler.

* * *

Dear Sir:

I thought you might like to see the enclosed fishing license issued to my son, Joseph J. Johnen, Jr., who is an Air Corps career man, presently stationed in England. He has been in the service over 16 years and has fished in a number of our states and several foreign countries. Note some of the regulations as stated on the license.

J. J. Johnen
McDonald, Pa.

Mr. Johnen's son was granted License No. 72698 by the Great Ouse River Board, Cambridge, England, to fish for trout, freshwater fish and eels with a single rod and line. The license cost 3 shillings (42c), subject to certain bylaws printed in full on the back of the license. In a bold box is printed—"Pollution—Anglers observing pollution are asked to notify the Board at once by Telephone. Cost will be refunded."

Among the various bylaws:

"No person shall take or attempt to take or kill any salmon, trout or freshwater fish or eels by any of the following modes,

On the NATURE TRAIL

PENNSYLVANIA'S BIGGEST TREES

American Forests magazine recently reported a list of the biggest trees in the United States, 353 different kinds of trees included. The following trees are in Pennsylvania:

Species	Circumference	Height	Spread	Location
Buckthorn, common	4'6"	32'	34'	H. H. Arnold, State College, Pa.
Prickly (Pricklyash)	22'3"	80'	82'	Glen Mills, Pa. T. V. Palmer, Concordville, Pa.
Hophornbeam, American	9'6"	70'	57'	J. R. Hansborough, Upper Darby, Pa.
Chinquapin Oak	19'6"	83'	80'	Near Friedsburg, Pa. Paul M. Felton, Morristown, Pa.
Dwarf Oak	1'4"	19'	15'	H. H. Arnold, State College, Pa.
Scrub Oak	1'4"	36'	12'	H. H. Arnold, State College, Pa.
Paw-Paw, common	4'9"	25'	32'	John D. Kendig, Lancaster, Pa.
Sassafras (Silky)	15'4"	65'	47'	Near Mt. Nebo, Lancaster County. Ray Brooks, Landisville, Pa.
Viburnum, Blackhaw	1'9"	20'	18'10"	Glen Mills, Pa., T. V. Palmer, Concordville, Pa.
Viburnum Nanberry	5'	22"	35'	H. H. Arnold, State College, Pa.

If you know of a tree of the same species larger than those listed here or any tree of exceptional size, either write the PENNSYLVANIA ANGLER or American Forestry Association, 919 Seventeenth Street, N.W., Washington 6, D. C.

that is to say:—lading or bailing out the water of any river or pond, tickling or groping."

"No person shall use in fishing for salmon, trout, freshwater fish or eels, any instrument (not being a fixed engine) except a rod and line (which must not be left unattended) and a landing net used as an auxiliary to angling with a rod and line, at any time or place in the River Board Area."

"No person shall use in connection with rod and line fishing:—any lure or bait which is trailed from a moving boat; any gorge bait for pike fishing; or any lure or bait for trout fishing between the 31st day of March and the 16th day of June, in any year, except artificial fly and preserved or artificial minnow."

"No person shall take any fish of the species hereinafter mentioned of a size less than such as is hereinafter specified, that is to say:

Pike	24 inches	Barbel	18 inches
Trout	11 "	Grayling	12 "
Tench	12 "	Carp	12 "
Chub	14 "	Bream	12 "
Roach	8 "	Rudd	8 "
Perch	8 "	Dace	7 "

"No person shall take or remove or carry away from any waters without the lawful authority of the River Board more than six freshwater fish of any kind in any one day of which not more than three may be bream weighing more than one pound each."

Under notice to license holders we read the following:

"License must be produced when demanded by any other License-holder or by a Conservator or Inspector or Water Bailiff of the Board on production of his Authority for so doing.

"The holder of this License is entitled to demand, on production thereof, the production by any person fishing, of his License.

"This License gives the holder no right to fish anywhere except where he has permission to do so."

HOW TO ACQUIRE AND KEEP PLACES TO FISH:

1) Get permission from the landowner. 2) Close all gates. 3) Drive only on roads and trails. 4) Don't park so that you block field roads. 5) Don't leave trash and litter. 6) Thank the landowner for allowing you to fish.



Dear Sir:

I was impressed by the picture of "Balanced Rock" that appeared in the February issue of the PENNSYLVANIA ANGLER. Enclosed you will find a photo of a unique rock formation which resembles the profile of an old Indian. It can be found in the Mauch Chunk creek, opposite Chestnut Hill Road, Jim Thorpe, Pa.

Harold Krobeth
Jim Thorpe, Pa.

Anyone else have a pix of an unusual formation? Send it in.

* * *

Dear Editor:

After 36 years an old wound was re-opened in the February issue of the PENNSYLVANIA ANGLER, the cartoon on page 23. I got such a kick out of it I showed it to my wife. To my surprise she informed me I was fishing at Hick's Run (Elk) when my first daughter was born!

Charles Bloam
Johnsonburg, Pa.

* * *

Dear Sir:

In late January at Presque Isle Bay, Erie, I had the good fortune of meeting the photographer of the Pennsylvania Fish Commission, Mr. Johnny Nicklas. He was in the course of gathering information for the ANGLER, shooting photos and chatting with folks out on the ice. He was very much interested in our catches, answered our questions. In my estimation he promoted a goodwill and relationship I never believed could have existed between fisherman and the Commission. I would like to see this published in the ANGLER so all can see the good work you people are doing.

Delbert Proege
Erie, Pa.

It makes our hackles stand up with pride when we get letters like this, Mr. Proege. Thank you for Johnny Nicklas and all of us.

In an item from "70 Years Ago (1892)" in the back files of the Lock Haven Express: "... E. B. Shoemaker and Robert Loveland, Lock Haven, were at McElhattan station to receive the 42,000 trout sent from the state hatchery at Corry for distribution in McElhattan creek and tributaries. To reach the headwaters of the stream required a trip of eight miles, and a good portion of the trip had to be walked through waist-deep snow. . . .

HIT THE FISHING TRAILS

**with these SPECIAL...DETAILED...COUNTY
WATER-HIGHWAY MAPS OF
PENNSYLVANIA**

Note: Your choice of any county map free with every new or renewal subscription to PENNSYLVANIA ANGLER. (See Back Cover for special offer.)

No.	Description	Unit Price	Total
	Allegheny	35c	
	Armstrong	35c	
	Bedford	35c	
	Berks	35c	
	Blair-Cambria	50c	
	Bradford	35c	
	Bucks-Montgomery	50c	
	Butler	35c	
	Cameron-Elk	50c	
	Carbon-Monroe	50c	
	Centre	35c	
	Chester-Delaware	50c	
	Clearfield	35c	
	Clinton	35c	
	Crawford	35c	
	Cumberland-Adams	50c	
	Dauphin-Lebanon	50c	
	Erie	35c	
	Fayette	35c	
	Franklin-Fulton	50c	
	Huntingdon	35c	
	Indiana	35c	
	Jefferson-Clarion	50c	
	Lackawanna-Wyoming	50c	
	Lancaster	35c	
	Lawrence-Beaver	50c	
	Lehigh-Northampton	50c	
	Luzerne	35c	
	Lycoming	35c	
	McKean	35c	
	Montour-Northumberland	50c	
	Perry-Juniata-Mifflin	50c	
	Pike	35c	
	Potter	35c	
	Schuylkill	35c	
	Somerset	35c	
	Sullivan-Columbia	50c	
	Susquehanna	35c	
	Tioga	35c	
	Union-Snyder	50c	
	Venango-Mercer	50c	
	Warren-Forest	50c	
	Washington-Greene	50c	
	Wayne	35c	
	Westmoreland	35c	
	York	35c	
	Total Cost		
	Plus 4% Pa. Sales Tax		
	Amount of Order		

Please send to:

Name _____

Address _____

Town _____

Make check or money order payable to the Pennsylvania Fish Commission.

Mail to—**PENNSYLVANIA FISH COMMISSION
HARRISBURG, PA.**

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

My Best Fishing Partner

The best fishing partner I will ever have is my son, Dave. He is eight years old and we have been fishing together for two years. True, I have two hooks to bait, two lines to untangle and many other inconveniences to cope with from my young partner. However, the tangled line and the extra hook that always needs baiting and all the other inconveniences I may encounter when we are fishing, are unimportant compared to the reward I receive from my son's grateful thank you. I am sure no man can receive higher praise anywhere or from anyone than what he gets from a happy, eager turned up face with two big, shining eyes and a voice that says, "Boy, Dad, this is neat!"

I can still recall our first fishing trip together. One warm Saturday afternoon I asked Dave, "How would you like to go fishing with me this afternoon?"

His reply was prompt and enthusiastic. "You bet Dad, I'd like to go fishing. May I use the new rod and reel you bought for me?"

"Yes, Dave, you certainly may. Help me pack our fishing equipment in the car and we will be on our way in no time at all."

I remember we stopped at a sporting goods store to buy worms on our way to the reservoir and Dave had an early lesson in the attraction a fascinating display of fishing lures and tackle may have for a fisherman. It is often said this fishing equipment always catches more fishermen than they do fish.

We found a comfortable, shaded spot along the waters edge with enough clearance from trees and bushes to allow Dave to cast without interference.

"Watch how I rig your line, Dave, and it won't be too long before you can take care of your own tackle," I told him as I proceeded to tie on a number 8 hook. I



dug a red and white bobber out of my Army knapsack, fastened it about four feet from the end of the line and then pinched on two split shot about a foot apart to keep the worm as deep in the water as possible.

"Now, Dave, one more operation and you are ready to go," I said and began to put a worm on his hook.

"Gee, Dad, that sure is a wiggly worm," Dave said to me, fascinated by the whole operation.

I laughed and handed him the rod, "The more the worm wiggles in the water the quicker a fish will bite at it. Now cast your bobber out into the water and keep your eye on it. You can tell right away when a fish eats your worm."

Mother Nature took over from there and from that day on Dave and I have spent many pleasant hours in her company fishing along some waters edge.

Fishing isn't always so easy or pleasant as this tale may picture. We have had our share of falling in the water, being bitten by bees and not catching any fish, but we have had fun too. Like the time Dave caught his first eleven inch bass and how he watched the way a papa bluegill protected his spawning eggs by constantly swimming around them in a circle and darting out to give battle if an interloper came too close to suit. Dave and I now spend most of the day fishing whenever we go out, but we do it by observing certain rules. We always have plenty of food to eat and water to drink. We never push our physical stamina too far by fishing too long without a rest and besides, it is very pleasant to stretch out on the grass, eat our lunch and just talk about fishing.

The fresh air, the sunshine, the peace and quiet of our surroundings we soak up together and as we do, I am glad this is one more time we have been "out" together. I hope these fishing excursions continue until some day Dave can enjoy taking his son fishing.—*M. C. Nicc*

Conservation is a challenge for every youngster, a voyage of discovery and a glimpse beyond the horizon.



CLIP HERE

Enclosed is \$2.26 for the **FULL CREEL** shown on inside back cover:
1) One (1) year's subscription (new or renewal) to the **PENNSYLVANIA ANGLER**.
2) Copy of **Pennsylvania Fishes**.
3) Free copy **Reptiles and Amphibians of Pennsylvania**.
4) Free **Pennsylvania Wafers-Highway Map (County of your choice)**.
5) Pocket card to determine age, weight of fish you catch.

Please send to:

Name _____

Address _____

Town _____

Indicate Free Map choice county _____

Make check or money order payable to the **Pennsylvania Fish Commission**

Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. **STAMPS NOT ACCEPTABLE**.

TROUT STREAM INSECT EMERGENCE TABLES

By CHAS. M. WETZEL

Common Name	Scientific Name	Habitat	Emergence Date
Little Black Stonefly (3)	<i>Taeniopteryx maura</i>	Pa., W. Va., Tenn., Mass., N. Y., Minn., Mo., Md., Kan.	Apr. 15
Red Quill (1)	<i>Ephemcrella subvaria</i>	N. Y., Pa., N. J., Ont., Quebec	Apr. 16
Little Black Caddis (2)	<i>Epeorus pleuralis, iron fraudator</i>	Pa., Can., N. Y., N. J., Del., Ind., Ga., Fla., Washington	Apr. 17
Red Legged March Fly (5)	<i>Bibio femoratus</i>	Pa., N. Y., N. J.	May 1
Smokey Alderfly (5)	<i>Sialis infumata</i>	Que., N. S., N. Y., New England, N. J., Pa., Wash., Mich., Ill., Minn., Calif.	May 1
Black Midge (5)	<i>Glyptotendipes lobiferus</i>	Pa., N. Y., N. J., Ont.	May to Sept.
Light Stonefly (3)	<i>Isoperla signata</i>	Pa., N. Y., N. S.	May 1
Penns Creek Caddisfly (2)	<i>Brachycentrus numerosus</i>	Well distributed through the northern hem.	May 8 to
Black Quill (1)	<i>Leptophlebia cupida</i>	Pa., Ohio, N. S., Nfld., Ill., Can., N. Y., N. H., N. C., R. I., N. J., Ont., Quebec, Mass.	May 15
Early Brown Spinner (1)	<i>Leptophlebia cupidis</i>	Same as above	May 16
Yellow Spider (4)	<i>Antocha saxicola</i>	Well distributed throughout the northern hem.	May 15
Stonefly (3)	<i>Neophasganophora capitata</i>	Pa., N. Y., Md., Mass., Minn., Quebec, N. S., Ind., Ill., Mich., Kan., Tenn., N. C.	May 15
Spotted Sedge (2)	<i>Hydropsyche slossonae</i>	Pa., N. Y., N. H., Ill.	May 16
Pale Evening Dun (1)	<i>Ephemerella dorothaea and rotunda</i>	Pa., N. Y., Can.	May 20
March Brown (1)	<i>Stenonema vicarium</i>	Pa., N. Y., N. B., N. H., Quebec, Tenn.	May 20
Great Red Spinner (1)	<i>Stenonema vicarium</i>	Same as above	May 21
Green Caddis (2)	<i>Rhyacophila lobifera</i>	Pa., N. Y., Ill.	May 21
Dark Green Drake (1)	<i>Hexagenia recurvata</i>	Pa., N. Y., Mass., Me., W. Va., Mich.	May 23
Brown Drake (1)	<i>Hexagenia recurvata</i>	Same as above	May 24
Ginger Quill Dun (2)	<i>Stenonema fuscum</i>	Pa., N. Y., Ont., Que., New Brunswick	May 25
Pale Evening Spinner (1)	<i>Ephemerella dorothaea and rotunda</i>	Same as Pale Evening Dun	
Ginger Quill Spinner (1)	<i>Stenonema fuscum</i>	Same as Ginger Quill Dun	May 26
Fish Fly (5)	<i>Chauliodes serricornis</i>	Pa., N. Y., Md., Ga., Ohio, Minn.	May 26
Green Drake (1)	<i>Ephemera guttulata</i>	Pa., N. Y., Tenn., Ont., Quebec	May 28
Black Drake (1)	<i>Ephemera guttulata</i>	Same as Green Drake	May 28
Gray Drake (1)	<i>Ephemera guttulata</i>	Same as Green Drake	May 28
Iron Blue Dun (1)	<i>Leptophlebia johnsoni</i>	Pa., N. Y., N. H., Que., Ontario	May 28
Grannon (5)	<i>Brachycentrus fuliginosus</i>	Pa., N. Y., Wash., Ontario	May 29
Jenny Spinner (1)	<i>Leptophlebia johnsoni</i>	Same as Iron Blue Dun	
Brown Quill (1)	<i>Siphlonurus quebecensis</i>	Pa., N. Y., N. C., Ont., Quebec	June 1
Green bottle or Blue bottle fly (5)	<i>Lucilia casear</i>	Commonly distr.	Variable
Whirling Cranefly (4)	<i>Tipula bella</i>	Pa., N. Y., N. J.	June 1
Orange Cranefly (4)	<i>Tipula bicornis</i>	Same as above	June 1
Golden Eyed Gauze Wing (5)	<i>Chrysopa occulata</i>	Commonly distr.	Variable
White Mayfly (1)	<i>Stenonema rubromaculatum</i>	Pa., N. Y., Mass., Ill., Ont., Quebec, N. B., N. S.	June 2
White Gloved Howdy (1)	<i>Isonychia albomanicata</i>	Pa., N. Y., Ont., N. C.	June 27
Yellow Sally (3)	<i>Isoperla spp.</i>	Commonly distr.	June 28
Golden Spinner (1)	<i>Potamanthus distinctus</i>	Pa., N. Y., W. Va., Ohio	June 28
Willow or Needle Stonefly (3)	<i>Leuctra grandis</i>	Pa., N. Y., N. J., North Carolina	June 28
Stonefly Nymph (3)	<i>Acroneuria lycorias</i>	Pa., N. H., N. Y., Mass., Me., W. Va., Mich., Wisc., Que.	
Brown Silverhorns (2)	<i>Athripsodes wetzeli</i>	Pa., N. Y. Similar species in Wisc. and Ontario	June 29
Big Orange Sedge (2)	<i>Neuronia postica</i>	Pa., Ga., Mass., Wisc., Newfoundland and Washington, D. C.	June 30
Yellow Drake (1)	<i>Ephemera varia</i>	Pa., N. Y., Mich., N. H., Ont.	July 1
White Caddis (2)	<i>Leptocella exquisita, leptocella albida, leptocella spp.</i>	Florida to Canada	July 1
Deer Fly (5)	<i>Chrysops vittatus</i>	Eastern and Northern States	Variable
Green Midge (5)	<i>Chironomus modestus</i>	Pa., N. Y., N. J., Ontario	July 4

Note. The number in parenthesis following the common name of the insect indicates the following: 1. Mayfly; 2. Caddisfly; 3. Stonefly; 4. Cranefly; 5. Miscellaneous.

For a more detailed treatise, as well as a description of the natural insects described above together with their imitations, the reader is referred to the following books available at most libraries:

Practical Fly Fishing by Chas. M. Wetzel. The Christopher Publishing House, 1140 Columbus Avenue, Boston, Mass.

Trout Flies by Charles M. Wetzel. The Stackpole Company, Harrisburg, Pa.



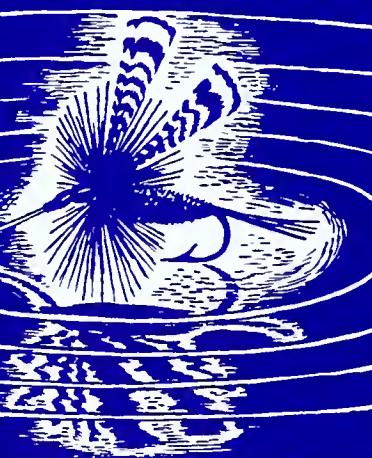
A GREAT CATCH!

- 1) One year subscription to the Pennsylvania Angler
- 2) Copy of the popular, interesting PENNSYLVANIA FISHES
- 3) FREE—County of your choice PENNSYLVANIA WATERS-HIGHWAY MAP
- 4) FREE—copy of the colorful PENNSYLVANIA REPTILES & AMPHIBIANS
- 5) FREE—pocket card for determining at a glance—the weight, age, of your catch

THIS—FINE—FULL—CREEL—FOR—ONLY—\$2.26

Pennsylvania Angler

May 1962





SPRING OUTFITTING

PENNSYLVANIA
FISH COMMISSION
DIRECTORY

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director
DR. ALBERT S. HAZZARD
Asst. Director
WARREN W. SINGER
Assistant to Executive Director
PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology
GORDON TREMBLEY _____ Chief
Fish Culture
HOWARD L. FOX _____ Superintendent
Real Estate and Engineering
CYRIL G. REGAN _____ Chief
EDWARD MILLER _____ Asst. Chief
Law Enforcement
WILLIAM W. BRITTON _____ Chief
Conservation Education-Public Relations
RUSSELL S. ORR _____ Chief



NORTHWEST REGION

CARLYLE SHELDON _____ Warden Supervisor
212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES _____ Warden Supervisor
R. D. 2, Somerset, Pa. _____ Phone: 6913
GEWAYNE CAMPBELL _____ Fishery Manager
451 Cannell Dr., Somerset, Pa. _____ Phone: 5837

NORTHEAST REGION

CLAIR FLEEGER _____ Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724
TERRY RADER _____ Fishery Manager
R. D. 3, Honesdale, Pa. _____ Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN _____ Warden Supervisor
1130 Ruxton Rd., York, Pa. _____ Phone: 2-3474
ROBERT BIELO _____ Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK _____ Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162
DAN HEYL _____ Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN _____ Warden Supervisor
21 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES _____ Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

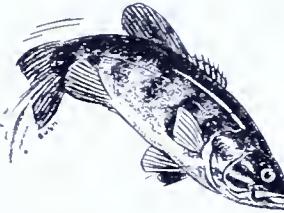
David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President Hawley
MAYNARD BOGART, Vice President Danville
JOSEPH M. CRITCHFIELD Confluence
WALLACE C. DEAN Meadville
JOHN W. GRENOBLE Carlisle
ALBERT R. HINKLE, JR. Clearfield
R. STANLEY SMITH Waynesburg
RAYMOND M. WILLIAMS East Bangor

MAY, 1962



VOL. 31, NO. 5

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 WIRED STOCKING AREAS—Joseph Boccardy, Fishery Management Biologist, Bureau of Sports Fisheries and Wildlife
- 4 HELP WANTED—Robert Bielo, Fishery Biologist, Pennsylvania Fish Commission
- 6 DISTINGUISHING THE PIKES OF PENNSYLVANIA—Jack Miller and Keen Buss, Fishery Biologists, Benner Spring Fish Research Station, Pennsylvania Fish Commission
- 8 BOATING
- 10 DIRECTORY OF PUBLIC FISHING AND BOATING FACILITIES IN PENNSYLVANIA
- 12 PENNSYLVANIA FISH COMMISSION MAP OF PUBLIC FISHING AND BOATING FACILITIES
- 14 FISH COMMISSION SPRING MEETING ITEMS
- 15 FLY-FISHING REGULATIONS—1962
- 16 FISH FOR FUN REGULATIONS—1962
- 16 QUEHANNA AREA REGULATIONS—1962
- 16 LETTERKENNY RESERVOIR REGULATIONS—1962
- 17 STREAM NOTES
- 18 CLUB MEMOS
- 19—PRIZE-WINNING ESSAY, PENNA. FEDERATION OF SPORTSMEN'S CLUBS—John Berthold, III
- 20 TACKLE TIPS—Don Shiner
- 21 BASIC NYMPHS—Chauncy K. Lively
- 21 THE FEMININE ANGLE—Marion Lively
- 23 BIOLOGY BRIEFS—Terry Rader, Fishery Biologist, Pennsylvania Fish Commission
- 24 PICTURE-OF-THE-MONTH—Don Shiner
Cover Art by John F. Clark
Cover 3—List of Regular Fish Wardens, Pennsylvania Fish Commission

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa.

NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

P 38.31
1.6

Wired Stocking Areas . . .

What are they? . .

Why are they? . . .

Are they worthwhile?

By JOSEPH A. BOCCARDY

Fishery Management Biologist
Bureau of Sport Fisheries and Wildlife

IN EARLY 1959, members of the Kane Fish and Game Club assisted in the establishment of "Wired Stocking Areas" on the South Branch of Kinzua Creek, McKean County. Since that time three other area streams have blossomed into this different approach to trout stocking. The initial request for this "Wired Stocking Area" method originated with members of sportsmen groups interested in the sport and recreation of fishing for native and stocked trout, in whose areas the streams are located.

Before answering the questions posed in the title, let us digress a little to explain the necessity of trout stocking. Early in the history of this region most streams contained good populations of native brook trout. Since that period many changes—recognized by all of us—have occurred. Pennsylvania's natural resources were exploited, countless streams polluted, the biological nature of countless others changed from cold-water to warm-water habitats; the population increased from 434,373 persons in 1790 to 11,319,366 persons in 1960.

As the mushrooming population exerted a greater demand on all natural resources, a decrease in the availability of trout was noted by the few people enjoying freedom and relaxation on the banks of streams and lakes. Shortly before this time it was discovered trout could be raised in artificial surroundings (hatcheries) by practicing certain principles of good animal husbandry. The products of this early hatchery system were stocked as fry and fingerlings in an attempt to

restore trout populations in areas lacking this species due to man's activities. As time passed, more, formerly good, trout-producing waters became unsuited for this species.

The human population continued to increase, with a corresponding increase in the numbers of anglers seeking recreation through fishing. The hatchery system expanded to cope with the increased demand for trout, both in numbers of physical plants and in the numbers and size of the product distributed. TROUT HATCHERIES CAME INTO EXISTENCE ONLY TO SUPPLEMENT THE NATURAL ABILITY OF A STREAM TO PRODUCE THIS SPECIES. Simply stated, there were too many fishermen for all to participate in the harvest of trout produced naturally. But, with a supplemental stocking of hatchery trout more anglers could derive satisfaction when fishing in remaining streams not overly abused by man.

At some point, since the development of a hatchery system in this state, the supplemental nature of the hatchery product related to fishing recreation has been lost. Angling, to some, is no longer a means to relax and enjoy nature. Today's criterion is a "full creel." It means harvesting all the law allows in the shortest possible time. This attitude, reflected in the heavy fishing pressure found on any stream immediately after a visit by a fish distribution unit, prompted sportsmen's organizations to seek a method. Maintaining the numbers of legal-sized fish in a stream for the benefit of the majority over a longer period of time, and not the minority for a relatively few days after stocking is the goal. "Wired Stocking Areas" appear to be part of the answer.

What is a "Wired Stocking Area?" It is a section of stream posted against fishing wherein all hatchery fish scheduled for that stream are stocked. The sections are posted as Pennsylvania Fish Commission Nursery Waters. This designation prohibits all fishing and carries a penalty large enough to discourage violation. Stream sections designated as stocking areas vary in length according to the nature of the stream. Areas with many pools are smaller than areas of riffle. This is necessary since pool areas tend to hold fish indefinitely, and defeats the function of the area, i.e., gradual release of the fish through natural movement into areas open to fishing. Distances between the areas also vary

somewhat with stream conditions, but approximately one mile of open stream between each stocking area has worked well on the experimental streams.

Why are "Wired Stocking Areas" Necessary? Hatchery trout are stocked in streams to be caught by sportsmen. This is the primary purpose of any hatchery operation. Why, then, do we attempt to slow down the harvest? As stated earlier, hatchery trout are stocked only to supplement the natural productivity of the stream. This is necessary in view of the large numbers of fishermen utilizing the resource, and the natural inability of the waters to provide enough fish for these anglers.

Simple arithmetic should convince anyone it is impossible to raise enough fish to insure a full creel of hatchery raised trout every time a person fishes. In 1960 the total number of legal trout stocked in Pennsylvania waters by the Pennsylvania Fish Commission and the U. S. Fish and Wildlife Service combined was approximately 2,700,000. About 600,000 licensed anglers paid for the privilege of catching these trout. By dividing the number of anglers into the total number of trout stocked—and this number of licensed anglers does not include the very sizable group of fishermen under sixteen years of age who need no license—each fisherman's share would be four and one-half trout. Considering that trout stocking is generally done during those hours when most of us are working, some means must be found to insure an equitable division, or chance, for a majority of anglers to harvest some of the stocked fish.

The term "truck following" is familiar to all who are associated with trout fishing. It is this minority with the time and inclination to fish while a stream is being stocked who reap the prime benefits. This then, is the reason "Wire Stocking Areas" are necessary—to delay the take of trout immediately after stocking, thus insure extended sport for the majority rather than an immediate heavy harvest for the minority.

Are "Wired Stocking Areas" Worth while? Medicine is only effective if it cures the illness for which it is administered. Do the stocking areas effectively prohibit heavy harvest immediately after stocking without reducing the ultimate total harvest? Creel census studies conducted on area streams prior to the stocking areas method of management, revealed a total harvest of stocked trout in excess of sixty per cent. This harvest was generally made in the three or four days following stocking. Thereafter, fishing pressure dropped sharply with very little angler action on the streams studied. Similar studies on the streams "under wire" revealed a total harvest of stocked trout also in excess of sixty per cent, but this harvest was achieved over a period of weeks, not days, after stocking.

Electro-fishing and chemical studies of all stocked trout streams in the Allegheny National Forest disclosed a total absence of stocked trout in most streams surveyed; *these surveys were started less than one month after the last in-season stocking of these waters.* It was concluded that most of the fish had ended in the fisherman's creel after creel inventories disclosed the



Photo—Courtesy U. S. Forest Service

exceptionally high harvest in forest streams. Also disclosed by the census was the poor harvest made by weekend anglers unless the stream had been stocked late in the week. One study on the Farnsworth Branch of Tionesta Creek recorded a forty per cent harvest of one in-season planting *within two hours* before the hatchery truck had completed distribution on the stream!

During the 1960 creel census of the two streams "under wire," all anglers interviewed were asked to comment on the new system. Ninety-five per cent of all respondents were in favor of the system, 1.6 per cent were against the system, and the remainder offered no comment.

Organized sportsmen, with knowledge of the project, have requested extension of the method to other streams basing their requests on the following facts: 1. Creel inventories have proven the total harvest of stocked trout in the managed streams is as high as that in streams with no control over rate of harvest. 2. The harvest of stocked trout is spread over the entire fishing season, as proven by creel checks, and electro-fishing disclosure of stocked trout available to the angler on the last day of the season in areas open to fishing. 3. Stocked trout not leaving the "Wired Stocking Area" are available during the last two weeks of the trout season, when fishing is allowed within the stocking areas. 4. Those trout not harvested and which survive the winter are available during the next fishing season as hold-over fish. Thus, over a two-year period, stocked trout harvest from streams "under wire" can exceed that of non-managed streams.

Stocking areas are not adaptable to all streams. The nature of this program restricts this type of management to streams under sixty feet in width capable of supporting trout throughout the year. However, by carefully selecting the streams to be wired, this type management can provide additional recreation over a longer period of time for more people. It is the goal of management.

HELP WANTED—1,000 fishermen to cast tiny lures among vast schools of sea run fish, headed upstream to meet their destiny!

This job is open to anglers who enjoy sport fishing in big waters with light tackle. Work is expected to begin in late April and last 4-6 weeks. No experience necessary—so they say, anyway.

Bring your own tools.

For more details about this ad please read the following article.

By ROBERT BIELO

Fishery Biologist
Pennsylvania Fish Commission

THE coming of spring means the start of many kinds of fishing to many different people. One particular group is anxiously awaiting the beginning of the annual run of herring up the Delaware River. This natural migratory movement of sea-going fish involves schools of herring, described by one commercial fisherman, as being large enough to cover a football field without room to drop a dime between fish.

The name herring is used here to indicate a special family of fishes. In the annual Delaware River run, three members of this well known fish family occur. Their names, both scientific and common are, respectively, *Alosa sapidissimo* or American shad, *Alosa pseudoharengus* (Wilson) or alewife or branch herring and *Alosa aestivalis* (Mitchill) or glut herring or more commonly, just "herrin."

The American shad has long been famous for its fine table quality as well as its excellence as a sport fish. For many years shad enthusiasts have been reconciled to the fact few of these favorite fish would ever again run the Delaware River. This bit of pessimistic conjecture was shattered in 1961 when fair numbers of American shad made their way up the Delaware River and provided some fine sport fishing at many points. Best results were reported from the Milford area in Pennsylvania's Pike County.

Most fishermen will find the three herrings that run the Delaware River easy to separate from any other fish of the river. Their very bright silvery appearance coupled with the large, easily removed scales, deeply forked tails and comparatively thin, but considerably compressed bodies, are readily identifiable features. The problem of knowing which herring you have is a bit more complex. The American shad, of course, runs much larger than the alewife or the glut herring. In addition a deep indentation of the toothless upper jaw of the shad is outstanding as neither of the other species has this obvious "V" groove.

Although there are some slight differences between

the alewife and glut herring their recognition comes with experience better than with long descriptive narration. A definite separation of the two can be made by opening the fish and noting the color of the lining of the body cavity. On the alewife the peritoneum, or body wall lining is pale and silvery. The glut herring will be found to have a black peritoneum.

The first members of the herring family to enter the river are the vast schools of alewives. They are closely followed by the lesser numbers of American shad with the glut herring or "herrin" not too far behind.

The alewives are known to run great distances into fresh water and, in the Delaware, have been reported as far upstream as the Pennsylvania-New York border. The "herrin" apparently make a much shorter run, reportedly going up the Delaware only to the New Hope area. The shad run to about the junction of the East and West Branches in the vicinity of Hancock, N. Y.

The object of this mass movement from the sea is to spawn in the fresh water of the river. After spawning, the adults soon start the return trip to salt water with occasional stragglers lingering on well into the summer. The young remain in the river until fall, then start their downward migration to the bay and eventually out into the ocean.

Now that we have established what we are going fishing for it is time to consider some of the other angles such as when, where and how, with absolutely no guarantees—especially on the "HOW."

The upstream migration is conditioned somewhat by the water temperature and river flow, as might be expected, but usually the schools of fish reach the upper limits of tide water by mid-April and are well into fresh water above the tide mark by May. The alewives and shad continue moving up river, appearing progressively at such points as New Hope, Lumberville, Easton, Shawnee, Milford and so on up stream well into June.

Although considerable fishing is done in the deeper tidewater channels below Trenton Falls, the major activity centers around the Morrisville area, both above and just below the Falls.

Starting downriver and being a bit more specific, good alewife and "herrin" fishing can be had either from the bank or by boat around the Burlington-Bristol Bridge. Access is easy around the bridge and in the vicinity of the Rohm and Haas Chemical plant. Boat access locally is limited to light, easy-to-carry models. Larger high-powered craft can put in downriver.

Moving upstream, but still in tidewater, shore fishing access is good below the Fairless Hills Plant. Light boats can be launched but a carry will be necessary.

At Morrisville there is excellent access to the river, both above and below the Falls. Boats can be launched near the railroad bridge with ease. Above the Falls, wading, to find roving schools of fish, is a popular sport.

In the Yardley areas both shore and boat fishing for the migratory alewives and herring are popular. The Pennsylvania Fish Commission has a boat launching ramp and parking area here that provides top-notch access.

Washington Crossing State Park also provides fine access for shore fishing and wading. The same is true at New Hope, where the entire town fronts along the river.

So the story goes as you move upstream to Center Bridge, Point Pleasant, Stover Park, and Upper Black Eddy where the Fish Commission has another access area, launching ramp and parking lot. Boats can be rented at this point and possibly at some of the other points if inquiry is made.

For fishermen interested only in the American shad and not the alewife or "herrin" the most likely fishing spots will be in the Milford area.

The towns mentioned are only reference points for the newcomer. Access to the river may be had at practically any point from the Burlington-Bristol Bridge to Easton. It is recommended the beginner learn the ropes of herring fishing in the Morrisville area, then follow the fish up river on his own later.

Writing about the "How" of alewife and "herrin" fishing is a tricky bit of business. Interviews with several experts in the game have revealed a few general suggestions that may be helpful, but for the most part you are strictly on your own.

The average size of the fish, 11-12 inches, dictates that light sensitive tackle can be used. Either spinning outfits of lightweight or fly rods of the trout fishing variety will fill the bill. There is complete agreement in all quarters that the lures to be used must be very small. Otherwise the subject of lures is wide open except for the grudging admission that a plain gold hook, size 8-10, rates high all around as a "herrin" bait. Fish have been taken on either gold or silver hooks with two tiny flickers hanging free on the bend below the barb. Very small gray, silver or gold spoons are sometimes successful. In any event the emphasis remains on the lure being very small.

The fish move in closely grouped schools following the deeper channels as they work upstream. The tiny lures are fished deep with the weight kept well up on the line or leader. Another axiom seems to be that the lure must move up from behind the fish, passing from tail to head to be attractive.

The delicate mouth structure of the alewife and "herrin" requires a light but firm and steady pressure on the line to control their high speed dashes for liberty without losing the fish.

The only thing to consider now is what to do with all of the fish that are going to be caught. When a good school is located or moves past your spot it is not unusual to land 50-100 fish in a short time. One report has it that a single fisherman has taken 500 alewives in a single day in the Morrisville area. Sounds like a long day and a lot of ALE . . . wives.

It seems the best thing to do is pickle your catch. Don't ask us how. Our editor will be pleased to have some good recipes sent to him.

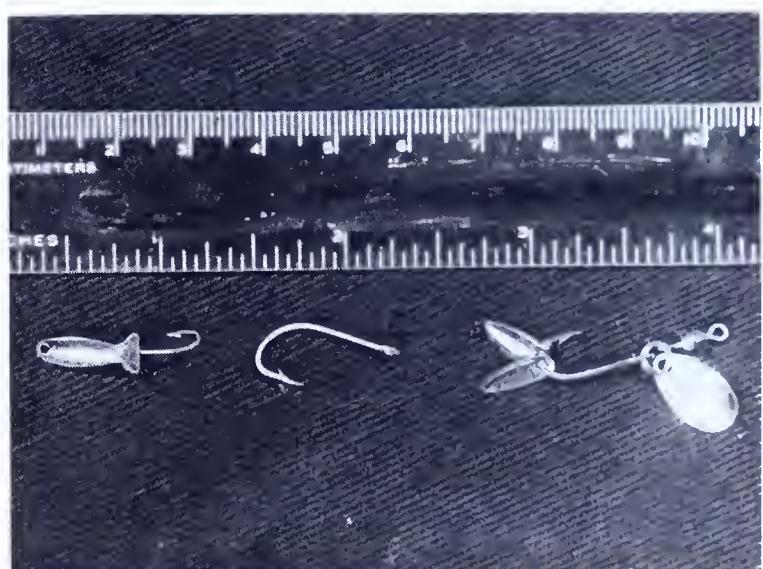
Now . . . who is ready for a fun-filled day of fishing and a big crock of pickled herring?



SIZE DIFFERENCE shown here between the larger shad and their smaller kin, the alewife. Size makes little difference when they're hitting light tackle!



TROLLING FOR SHAD on the upper Delaware River near Milford, Pa. Gold spoons and spinners are popular here, quite the reverse of the silver lures favored by Susquehanna Flats shad and herring fishermen.



TYPICAL LURES used by the light-rodding alewife angler (left to right): small gold minnow, small bare gold hook and small gold "flicker" lure.

Distinguishing

The Pikes

of Pennsylvania

(Family—Esocidae)

By

JACK MILLER and KEEN BUSS

Fishery Biologists

Benner Spring Fish Research Station
Pennsylvania Fish Commission

THIS family is represented in Pennsylvania by four species and one subspecies. The muskellunge, northern pike, chain pickerel, redfin pickerel and the grass pickerel, which is a subspecies of the redfin, represent these species. The morphological (structural) differences between the redfin and grass pickerel are slight, but the range is different and distinct. The redfin pickerel is found east of the Allegheny Mountains and the grass pickerel, sometimes called mud pickerel, is found to the west of the Allegheny Front. In this publication, these two pickerels will be considered as one species.

Members of the pike family are early spawners and often lay their eggs soon after the ice melts in the spring of the year. The adhesive eggs of pike are deposited on the bottom and on aquatic vegetation and left unattended after fertilization, which occurs immediately after the eggs are extruded. The mortality of the fry is high since they attach themselves to aquatic vegetation and are comparatively helpless. During this stage the piscivorous (fish eating) pan fishes and other fishes feed heavily on them. By late summer the immature fish are well developed and well adapted for taking care of themselves and can be seen darting among the weeds looking for prey.

The pike family, which is found in Europe, Asia, and North America, is noted for its voracious appetite. Because of the insatiable appetite, it is a good game fish—taking artificial and natural baits equally well. Sportsmen hold them in high esteem because they are

gamy. The grass pickerel is an exception to this because it rarely becomes large enough to be considered as a game fish of any sort.

The muskellunge, *Esox masquinongy*, is usually gray-green, with light vertical bars on the sides of the body and fins spotted with black. The older, larger fish tend to be more plain on the sides. The muskellunge was originally found in western Pennsylvania but in recent years it has been introduced into all sections of the Commonwealth. The world's record for this largest member of the pike family is 69 pounds and 15 ounces.

The northern pike, *Esox lucius*, in good condition is a beautiful fish. When freshly caught, the body ranges from yellow green on the sides to a dark green on the back. They are marked with small yellow spots on the sides and the fins are varicolored with red and black markings on the rays. The original range of this fish was northwestern Pennsylvania. The American record is 46 pounds and 2 ounces.

The chain pickerel, *Esox niger*, is dark green on the back grading into a yellow chain-like pattern on the sides. The fish are found in the Atlantic drainage with the peak of their abundance in the northeastern counties. Maximum length is about 30 inches.

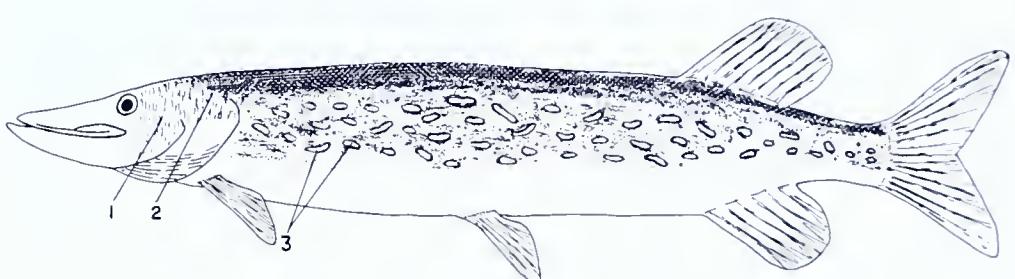
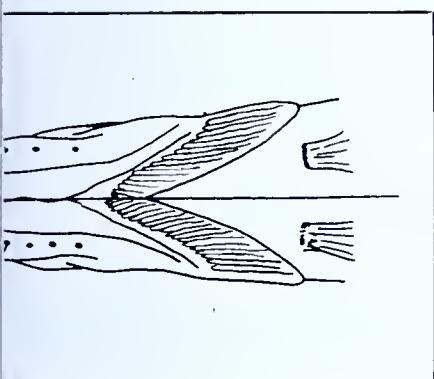
The redfin, *Esox americanus*, and the grass pickerel, *Esox a. vermiculatus*, are collectively known as the little pickerels. They have dark green sides with usually about 20 distinct dusky bars. The maximum length is about 12 inches.





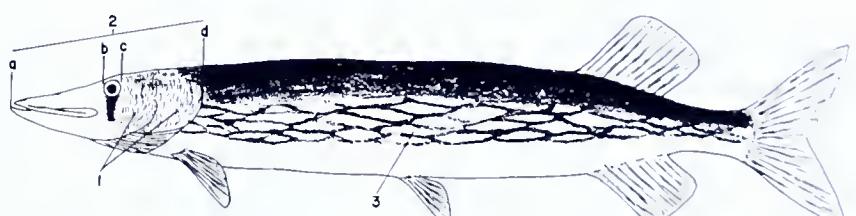
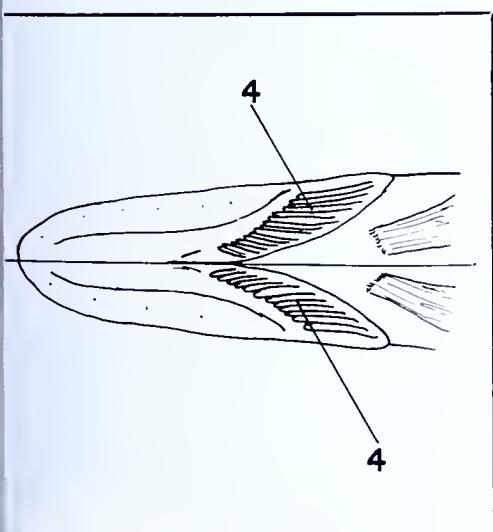
Muskellunge
(*Esox masquinongy*)

1. Cheek scaled only on upper half.
2. Opercle scaled only on upper half.
3. Side plain or with vertical bars.
4. (Insert) 6-9 pores on each side of lower jaw.



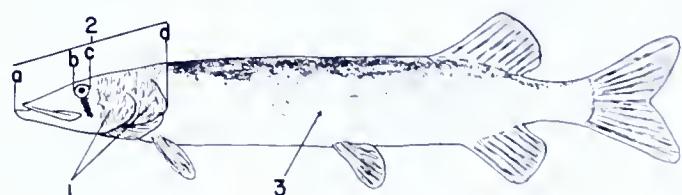
Northern Pike
(*Esox lucius*)

1. Cheek fully scaled.
2. Opercle scaled only on upper half.
3. Yellow bean-like spots on sides.
4. (Insert) Five pores on each side of lower jaw.



The Chain Pickerel
(*Esox niger*)

1. Cheeks and gill cover fully scaled.
2. Distance from tip of snout (a), to front of eye (b), greater than distance from back of eye (c), to end of gill cover (d).
3. Chain-like pattern on sides of adults.
4. (Insert) Branchiostegals 14-16.



The Grass Pickerel and Redfin Pickerel
(*Esox a. vermiculatus* and *Esox americanus*)

1. Cheeks and gill covers fully scaled.
2. Distance from tip of snout (a), to front of eye (b), less than distance from back of eye (c), to end of gill cover (d).
3. Sides with dark vertical bars.
4. (Insert) Branchiostegals 11-13.

Boating ★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★

Time for Spring Outboard Motor Check

The boating bug, a fabled creature that each year gets to every boating enthusiast, has come out of hibernation. And outboard skippers throughout the country are being bitten and reminded that this is the time to get their boating equipment ready for the coming season.

Before that first perfect day of spring arrives, take a little time to put your outboard motor in top condition. You may want to leave this to the expert, a qualified marine dealer, or if you're like many boatmen, you may get more satisfaction and enjoyment from doing it yourself. If the latter is the case, here are some tips from Bill Smale, chief engineer at Evinrude Motors, that will help you do the job correctly.

First of all, remove the spark plugs and leave them out until you have finished working on the motor. This is a safety precaution. Inspect the plugs for excessive burning, fouling or cracks. If they appear to be in good condition, they can be cleaned, regapped and reused. But if you suspect they are bad, throw them out and start the season with new plugs making sure they are the type recommended by the manufacturer. Also check the rubber insulators. If cracked or worn, they should be replaced.

The fuel system is the next step. If you neglected to drain all fuel from the motor last fall, gum deposits may have formed in the sediment bowl. Remove the bowl and wash both the bowl and the filter in neutral spirits or clean gasoline. If the filter is badly clogged, replace it. It's a good idea to also replace the bowl gasket each spring. Check all fuel lines for leaks or cracks.

Inspect and lubricate all linkage. Make sure the throttle opens and closes properly and the parts are not worn. Also check the shifting mechanism. If your boat is fitted with remote controls, it's a good idea to remove the cover and lubricate the interior parts with waterproof grease. Check to see that the cables are secured properly.

If you did not drain and refill the lower gear case last fall, be sure to do it now and after each fifty hours of use. If water or metal chips are detected in the drain oil, have a qualified marine dealer inspect the motor. Refill with only the type of lubricant the manufacturer recommends.

All grease fittings should be filled with the proper lubricant and checked periodically throughout the season. If the motor is used in salt water, more frequent lubrication is necessary.

Never use fuel that has been left in the tank over the winter. Very possibly, gum deposits have formed and using the fuel may cause the filter and carburetor

to become clogged. Unless the tank was completely drained last fall, it may be necessary to scrub it out with acetone or lacquer thinner to remove gum deposits. If it is badly gummed, this is best done by a qualified dealer.

According to Smale, top performance can be achieved only when the propeller is in good condition and properly matched to the boat and load combination. A propeller with visible damage, whether it be bent, nicked or broken, should be repaired or replaced. And even if damage is not apparent, the propeller may be enough out of pitch to seriously affect the performance of the boat. A marine dealer can quickly check and true a propeller on a pitch block. While you're inspecting the prop, lubricate the propeller shaft and check the drive pin for wear.

As a final step, give the motor a thorough visual inspection. Look for loose screws, nuts and bolts, as well as damaged parts. Pull the starter rope slowly to make sure the powerhead is not obstructed. When you are satisfied that everything is shipshape, replace the spark plugs. Proper spark plug torquing is important and since most people do not have a torque wrench readily available, the Evinrude engineer offers this rule of thumb. Turn the plugs in until they are finger tight. Then, with a spark plug wrench, tighten them an additional three-quarters of a turn.

It doesn't take long to put your outboard motor in shape for the season. And if you do it now, you'll be all set to slip your boat into the water when the first warm and sunny day of spring arrives to announce the opening of another long-awaited and fun-filled boating season.





it, remove the spark plugs and check them for fouling or burning. If they look good and have not been used too long, they can be cleaned, regapped and reused.



Remove the carburetor sediment bowl by loosening the thumb nut at the base of the bowl. Both the bowl and the fuel filter should be cleaned in neutral spirits or clean gasoline.



If you did not drain and refill the lower gear case last fall, this should be done by now. Be sure to refill with only the type of lubricant recommended by the manufacturer.



Inspect the fuel tank. If it was left partially filled over the winter, gum deposits might have formed. Acetone or lacquer thinner will usually remove such deposits.



A few nicks on the propeller can seriously affect engine performance. A propeller that is nicked, bent or broken should be replaced or at least repaired.

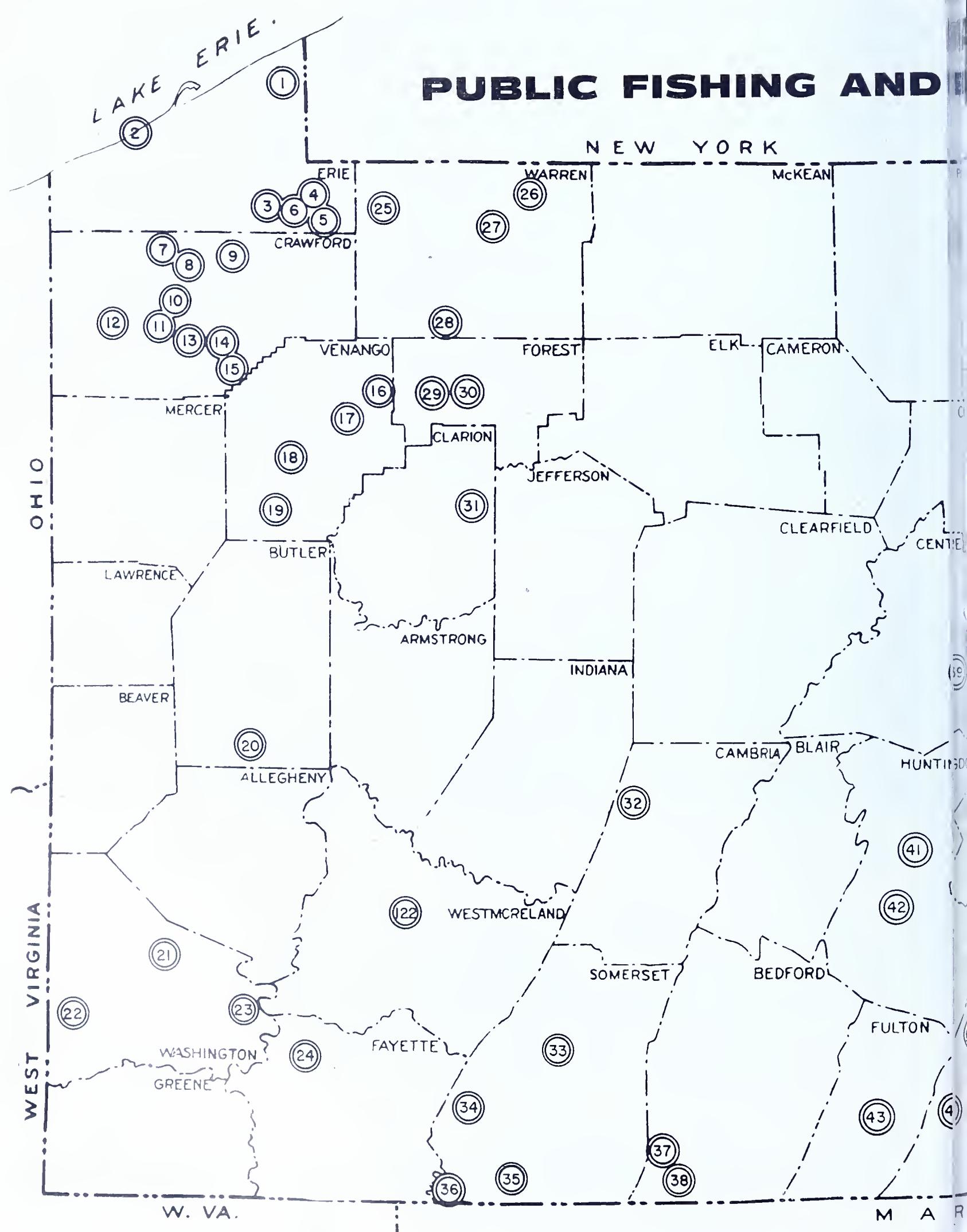


As a final step, thoroughly inspect the exterior of the motor for loose screws and damaged parts. Check the friction adjustments on the tilt, steering and steering handle.

Pennsylvania Fish Commission—Public Fishing and Boating Properties and Facilities

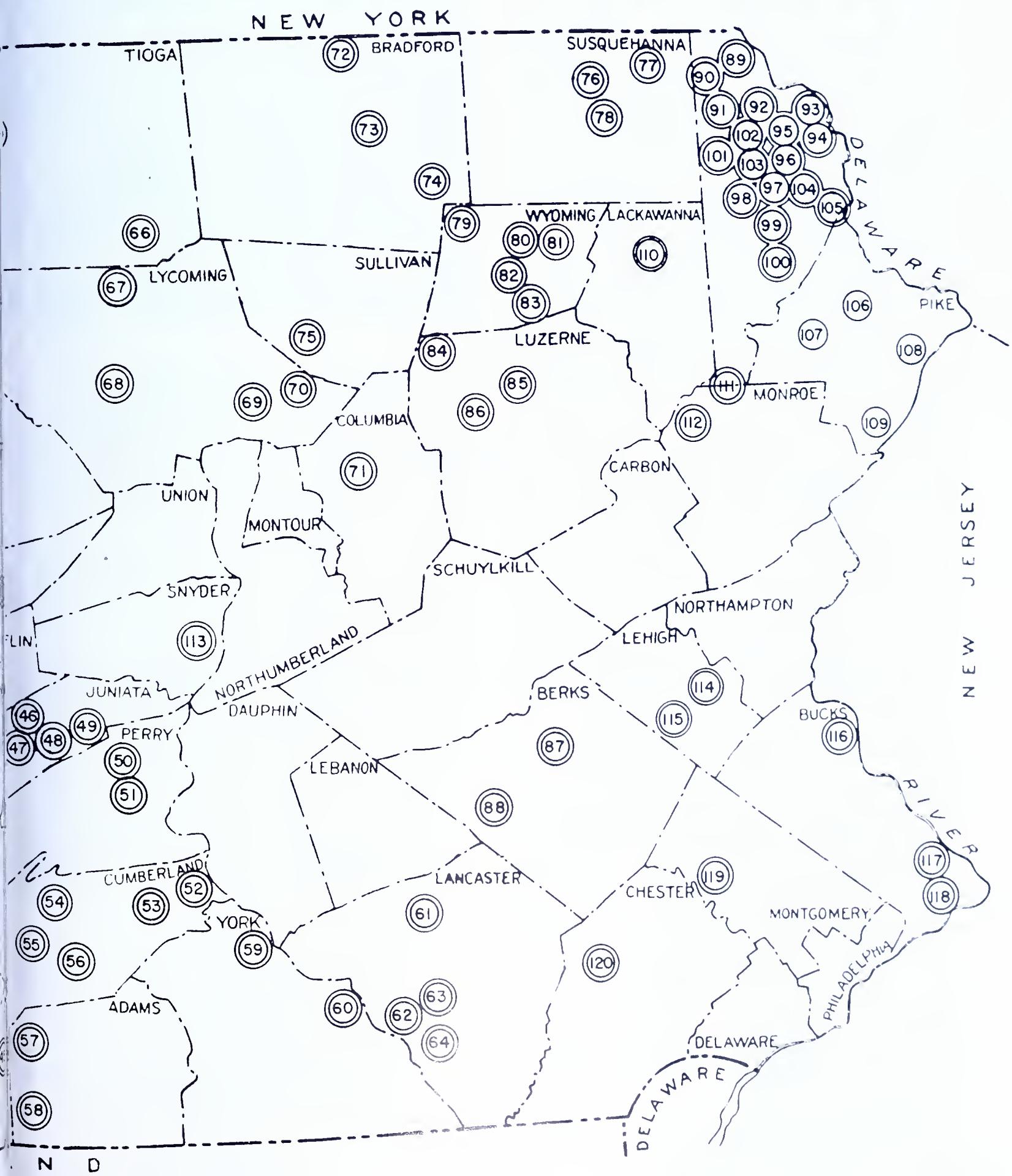
County	Map No.	Property	General Location	Property Size and Type		Access	Launchings	Parking	Dockings	Sanitary
				Total Acres (a)	Waterfront (w)					
Adams	57	Chambersburg Reservoir	2 mi. N. Rt. 30, Michaux St. Forest	L	175.0 a					
Adams	58	Waynesboro Reservoir	9 mi. E of Mt. Alto off Rt. 233	L	35 a	26 a				
Bedford	38	Evitts Creek	5 mi. S Bedford Valley, E. Rt. 220	L	3669 a	391.0 a				
Bedford	37	Wills Creek	In Hyndman on Rt. 96	E	.4 m					
Berks	88	Charming Forge	1 mi. N. of Womelsdorf on LR 06051	O	22 a	10 a				
Berks	87	Schuylkill Canal	2 mi. S. of Hamburg off Rt. 122	O	12 a	12 a				
Bradford	72	Sayre Access	2 mi. NE of Sayre on LR 08077	O	16.4 a					
Bradford	74	Terrytown Access	At Terrytown on T 450	O	6.0 a					
Bradford	73	Wysox Access	2 mi. S. of Towanda on LR 08107	O	2.3 a					
Bucks	118	Levitown Lake	In Levitown off Rt. 13	O	30.7 a	20 a				
Bucks	116	Upper Black Eddy	Upper Black Eddy	O	0.397 a					
Bucks	117	Yardley Access	Yardley Poro	O	0.650 a					
Butler	20	Glade Run Lake	1 mi. E of Coopertown off Rt. 8	O	145 a	60 a				
Cambria	32	Dunbar Dam	3 mi. N. of Belsano on Rt. 933	O	58 a	20 a				
Centre	39	Bennett Springs	3 mi. S. of Bellefonte off Rt. 545	L	43.42 a					
Centre	40	Sinking Creek	$\frac{1}{2}$ mi S of Tusseyville on TR 409	O	141 a					
Chester	121	Spring Creek	3 mi. S. of Bellefonte off Rt. 545	O	5.3 m					
Chester	120	Icedale Lake	5 mi. E of Honeybrook off Rt. 322	O	50 a	18 a				
Clarion	31	Clarion River	SGL #74 at Mill Creek	L						
Columbia	71	Orangeville Dam	At Orangeville on Rt. 93	O	10.15 a					
Crawford	8	Cambridge Springs	1 mi. NE of Cambridge Springs on LR 20076	O	10 a					
Crawford	9	Caradonna Lake	1 mi. N. of Lincolnville on LR 20139	O	4.5 a					
Crawford	12	Conneaut Lake	2 mi. S. of Harmansburg off Rt. 618	O	2 a					
Crawford	11	Cisseevago Creek	$\frac{1}{2}$ mi. W. of Meadville on Rt. 98	O	6.1 a					
Crawford	7	Drake Mill Dam	2 mi. NW of Cambridge Springs on Rt. 99	O	75 a	53 a				
Crawford	13	Meadville Access	$\frac{1}{2}$ mi. S. of Meadville off Rt. 322	O	15 a					
Crawford	10	Saegerstown Access	At Saegerstown on Rt. 6	O	1 a					
Crawford	15	Sugar Lake	5 mi. NE of Coehranton off Rt. 78	O	Lot					
Crawford	14	Tamarack Lake	2 mi. SE of Meadville off SR 20030	O						
Cumberland	55	Big Spring	4 mi. S. of Newville on Rt. 891	L	16.63 a					
Cumberland	52	Borough of West Fairview	Borough of West Fairview	O						
Cumberland	54	Possum Creek Lake	6 mi. NW of Carlisle off LR 21033	O	214.18 a	60 a				
Cumberland	53	Silver Springs Access	1 mi. NW of Silver Springs, 1 mi. off Rt. 11	O	$\frac{1}{2}$ a					
Cumberland	56	Yellow Breeches Creek	At Huntdale off LR 21008	O	1.1 m					
Erie	6	Beaver Dam Run	$\frac{1}{4}$ mi. S. of Elgin off LR 25042	E	1.1 m					
Erie	4	S. Br. French Creek	1 mi. E of Elgin on LR 25046	E	2.7 m					
Erie	5	S. Br. French Creek	1 mi. E. of Elgin on LR 25046	O	7.5 a					
Erie	1	Howard S. Eaton Reservoir	9 mi. SE of Borough of Northeast on Rt. 426	L	246.0 a	246. a				
Erie	3	Union City Reservoir	East of Union City off Rt. 6	L	117.0 a					
Erie	2	Walnut Cr. Access Area	7 mi. W. of Erie off Rt. 5	O	12.0 a					
Fayette	24	Virgin Run Dam	$\frac{1}{2}$ mi. N. of Flat Woods on LR 26123	O	135 a	35 a				
Forest	29	Tionesta Access	Borough of Tionesta	O	2 a					
Forest	30	Tubbs Run	At Tionesta off Rt. 62	O	5.2 m					
Franklin	45	Dickey's Creek	4 mi. N. of Mercersburg off Rt. 75	E	.9 m					
Franklin	44	Letterkenny Reservoir	3 mi. W. of Roxbury off Rt. 641	L	128 a	54 a				
Fulton	43	Meadow Grounds	Borough of Thompsonstown	O	250 a					
Huntingdon	41	Point Access	6 mi. E of McMechensburg	O						
Huntingdon	42	Raystown Access	4 1/2 mi. SE of Hesston off TR 417	O	10.7 a					
Juniata	46	Mifflintown Access	$\frac{1}{2}$ mi. N. of Mifflintown	O	5 a					
Juniata	48	Muskat Springs Access	2 1/2 mi. E. of Mexico off Rt. 22	O	6 a					
Juniata	49	Thompsonstown Access Area	$\frac{1}{4}$ mi. S. of Thompsonstown on SR 34029	O	4.4 a					
Juniata	47	Walker Access Area	1/2 mi. N. of Mexico on T. R. 380	O	4.4 a					
Lackawanna	110	Chapman Lake	2 mi. N. of Montdale off Rt. 247	O	Lot	98 a				
Lancaster	6	Hammer Creek	$\frac{1}{2}$ mi. S. of Lancaster	O	10 m					

Location	Access Point	Description	Notes
Highline	115	Little Lehigh Creek	2 mi. N of Macungie off LR 39085
Highline	85	Bryants Pond	1 mi. E of Pikes Creek off Rt. 115
Highline	84	Mountain Springs	6 mi. N of Kytle off Rt. 115
Highline	83	Sylvan Lake	1 1/2 mi. S of Sweet Valley off LR 40068
Highline	70	Beaver Lake	8 mi. NE of Highsville on LR 41085
Highline	69	Hightland Lake	5 mi. N of Picture Rocks on TR 660
Highline	68	Larry's Creek	3 mi. NE of Salladasburg on 973
Highline	67	Roaring Branch Creek	3 mi. W of Roaring Branch on LR 41043
Highline	66	Brady's Lake	9 mi. NE of Blakeslee off Rt. 940
Highline	112	Gouldshoro Lake	In Gouldshoro off Rt. 611
Highline	111	Penhurst Access	At Penhurst School on SGL #234
Highline	50	Greenwood Access	2 1/2 mi. S of Millerstown off Rt. 22
Highline	51	Junata River (P. P. & L.)	1/2 mi. E of Newport off Rt. 22
Highline	109	Bashkill Access	N of Bushkill off S.R. 34029
Highline	107	Fairview Lake	1/2 mi. S of Tatton off LR 51028
Highline	106	Greeley Lake	1/2 mi. W of Greeley off TR 415
Highline	108	Mifflord Access	At Turnpike Bridge
Highline	113	Middle Creek Lake	1.5 mi. S of Selinsgrove off Rt. 15
Highline	34	Cranberry Glade Lake	8 mi. N of Confluence off LR 55021
Highline	33	Lake Somerset	1/2 mi. N of Somerset off Rt. 219
Highline	35	Negro Glade Dam	10 SW of Meyersdale, Elk Lick Twp.
Highline	36	Youghiogheny Reservoir	8 mi. S of Confluence off Rt. 40
Highline	75	Hunter's Lake	2 mi. N of Minut Valley on Rt. 42
Highline	76	Great Bend Access Area	SGL #35, 1 mi. E of Hallstead
Highline	77	Oakland Access Area	2 mi. N of Oakland on Rt. 92
Highline	78	Stump Pond	4 mi. E of Milford on Rt. 492
Highline	65	Beechwood Lake	At Sabinsville, off Rt. 349
Highline	66	Roaring Branch Creek	1 1/2 mi. W of Roaring Br. on LR 41043
Highline	18	City of Franklin	Elk Street in City of Franklin
Highline	19	Kennedell Access Area	in Kennedell off RT 60011
Highline	17	Oil City Access Area	1/2 mi. SW of Oil City on Rt. 62
Highline	28	Allegheny River Access	1/2 mi. S of Hunter Bridge on Rt. 537
Highline	26	Brown's Pond (Brockenstraw Cr.)	2 mi. S of Tidionite on Rt. 62
Highline	25	Columbus Dam (Brockenstraw Cr.)	1 mi. S of Lander
Highline	27	Starbrick Access Area	1/2 mi. N of Borough of Columbus
Highline	21	Canonsburg Lake	River Road-Starbrick
Highline	22	Dutch Fork Lake	3 mi. E of Canonsburg on Rt. 19
Highline	23	Speers Access	4 mi. W of Claysville off Rt. 40
Highline	104	Alder Marsh Creek	In Speers
Highline	91	Belmont Lake	3 mi. W of Rilesville on Rt. 371
Highline	89	Buckingham Access Area	3 mi. N of Pleasant Mt. on Rt. 670
Highline	94	Duck Harbor Pond	1/2 mi. N of Equinunk on Rt. 90
Highline	95	E. Br. Dyerby Creek	3 mi. SW of Hilltown, 1 1/2 mi. W of Rt. 90
Highline	93	Equinunk Access Area	3 mi. E of Rilesville on Rt. 371
Highline	92	Equinunk Creek	3 mi. W of Rilesville on Rt. 371
Highline	103	Fork Mountain Lake	3 mi. N of Pleasant Mt. on Rt. 90
Highline	90	Lake Lorraine	4 mi. SE of Lake Como off Rt. 247
Highline	91	Long Lake	4 mi. SE of Aldenville off Rt. 170
Highline	95	Lower Woods Pond	5 mi. SE of Lake Como on LR 63041
Highline	96	Miller Pond	5 mi. W of Rilesville off Rt. 370
Highline	97	Narrowburg Access	5 mi. E of Pleasant Mt. off Rt. 247
Highline	102	Long Lake	1/2 mi. SW of Narrowsburg on Rt. 106
Highline	99	Long Pond	3 mi. SW of Lake Como off Rt. 247
Highline	96	Lower Woods Pond	2 mi. NE of Aldenville off Rt. 170
Highline	95	W. Br. Lakawaxen Cr.	3 mi. W of Rilesville off Rt. 371
Highline	98	White Oak Pond	5 mi. E of Pleasant Mt. off Rt. 247
Highline	122	Lake Donn	1/2 mi. W of Aldenville off Rt. 11147
Highline	79	Brothong of Laceyville	1 mi. W of Honesdale on Rt. 943
Highline	83	Brownian's Creek	In Laceyville on Rt. 6
Highline	80	Mohegan Creek	2 1/2 mi. N of Cold Spring on LR 63041
Highline	81	Sorven Lake	At Pleasant Mount off Rt. 371
Highline	82	Tunkhannock Access Area	5 mi. N of Tunkhannock off Rt. 29
Highline	79	Tunkhannock Access Area	1 mi. S of Tunkhannock off Rt. 309
Highline	140	Wrightsville Access	Cold Boro Boro
Highline			In Wrightsville on Rt. 30

PUBLIC FISHING AND

nia Fish Commission

MAP OF FISHING PROPERTIES AND FACILITIES



Fish Commission Spring Meeting

The Pennsylvania Fish Commission met on April 2, 1962. The first order of business following roll call was the reading of the minutes of the January 22, 1962, meeting and their approval.

1. Executive Director Albert M. Day reported that changing the operation of Fisherman's Paradise to a "fish for fun" area apparently has met with widespread approval. He said that Fish Commission projects authorized under the General State Authority were progressing as rapidly as possible. He further stated that this program would be accelerated as soon as all legal details are clarified. The director recommended that the Commission authorize steps necessary to prepare the Fish Commission presentation of its participation in the use of "Project 70" funds if and when such monies are made available. He advised the Commissioners that the \$5,000,000 which is anticipated as the amount of money to be made available to the Fish Commission under Project 70, would be used for acquisition of lands throughout the Commonwealth. He said that New York, New Jersey and other states have endorsed similar projects by wide margins. The director reported that the Attorney General's office is continuing to press for settlement by the Glen Alden Corporation for pollution of the Upper Susquehanna River. He said that the company has been advised of the probability of a suit to recover damages to aquatic life in the stream. Such damages are expected to greatly exceed the \$58,504.50 originally asked for. Director Day reported that he and Dr. Goddard had conferred with Ohio officials concerning a compromise agreement calling for creel limits on bass, walleye and muskellunge at Pymatuning Reservoir. (The Commission approved the five-year agreement setting daily creel limits of 10 each on bass and walleye and 2 on muskellunge, with possession limits of 20 each on walleye and bass and 4 on muskellunge after the first day. This agreement also was ratified by the Ohio Wildlife Council on April 6.)

2. The Commission instructed the staff to make a thorough study of ways and means of increasing Fish Commission revenue.

3. The Commission approved a list of fly-fishing only waters. (The complete listing appears on pages 15 and 16 of this issue of the PENNSYLVANIA ANGLER.)

4. The Commission approved the regulations for fishing at Letterkenny Reservoir and at the Curtiss-Wright Quehanna area. Letterkenny Reservoir open season started April 14. Quehanna season June 1 to September 3. Letterkenny hours—5 a.m. to 9 p.m., E.S.T. Quehanna hours—6 a.m. to 8 p.m., E.S.T.

5. Commission approved plans to continue sale of carp from Pymatuning Refuge as a means of fish management in the area.

6. The Commission acted to rescind four boating safety regulations as printed in the 1962 Motorboat



Photo by Glenn Hoy

Fish Commission Exhibits Popular at Winter Shows

Fish Commission exhibits at the major winter sports shows featured several new displays. In addition to the live fish shown in the eight-aquaria exhibit, other activities of the Commission and sportsmen were depicted in special model layouts.

The Commission's display also was presented for the first time this year at the Farm Show. The exhibit, which was in cooperation with the Vacation and Travel Development Bureau of the Department of Commerce, included miniature scenes of ice fishing and farm operation with a stream improvement theme.

Stream improvement and cooperative trout hatchery programs also have been featured in special exhibits prepared for use at the Harrisburg, Philadelphia and Allentown Sports Shows. These displays were prepared by biologists and Conservation Education personnel.

It is estimated that more than 750,000 people viewed the Commission exhibits during their display at the winter events. Wherever possible, these exhibits also will be featured at county fairs and other major events where Fish Commission participation has been scheduled this summer.

Rules and Regulations. (These are the last four paragraphs of the section "Reckless Operation" beginning on page 7.) At the same time the Commission approved four substitute regulations to replace the rescinded ones. The new regulations, however, will not become effective until April 1, 1963, to enable the staff time to develop procedures to implement the new regulations requiring boating safety certificates for operators under 14 years of age.

FISH COMMISSION ADOPTS 1962 FLY-FISHING REGULATIONS

Special Fly-Fishing Regulations—1962

The following regulations are uniform and apply to any waters set up as fly-fishing streams. Fishermen must be guided accordingly:

1. Fishing may be done only with artificial flies and streamers of construction materials limited to feathers, fur, hair, tinsel or fibre, except that bodies of flies or streamers may be of plastic, cork or rubber. Weight or sinkers up to the equivalent of 2BB shot may be built into the fly or streamer or affixed to the leader. Other lures commonly described as spinners, spoons or plugs made of metal, wood, plastic or rubber, singly or in combination, are prohibited.

2. Fishing may be done only with conventional fly-fishing tackle. Any method of angling whereby the fly or streamer is cast directly from the reel is prohibited.
3. Possession of any bait or lures other than artificial flies and streamers is prohibited.
4. Fishing hours: 5:00 a.m. to 9:00 p.m., E.S.T.
5. Minimum Size: Nine (9) inches, caught on or in possession on the waters under regulations.
6. Daily Creel Limit: Six (6) trout—combined species, caught on or in possession on the waters under regulations.

Name of Stream	County	Mileage	Location of Fly-Fishing Area
Coves Creek	Bedford	1 mile	Downstream from Shaffer Dam on Percy Smith property to the boundary of the Sam Deal and James Shoemaker properties.
Potter Creek	Bedford	1.4 miles	From a concrete bridge on the property line of Ulery and Steele downstream to the vicinity of Township Route No. 594.
Yellow Creek	Bedford	1 mile	From mouth of Maple (Jacks) Run upstream to Red Bank Hill.
First Fork, Sinnemahoning Creek	Cameron	2 miles	From Rattlesnake Run to Potter County line.
Mud Run	Carbon	2.6 miles	In state forest area.
Trout Run	Clearfield	4 miles	From Leg. Rt. 17126 near Shawville to Ireland's Forty.
Young Woman's Creek (Right Branch)	Clinton	6 miles	From confluence with the Left Branch to and including the pool under Moo Hollow Bridge, except 1 mile as described in "Fish for Fun" waters listing.
Green Spring	Cumberland	2 miles	The posted area of Green Spring Creek upstream from its mouth.
Clarks Creek	Dauphin	2 miles	From mouth upstream to Route 225.
Dunbar Creek and tributaries	Fayette	14 miles	From stone quarry to headwaters including tributaries.
Falling Springs Creek	Franklin	2.25 miles	From the concrete bridge between the Adin L. Frey and Earl Stull property downstream to a wire fence crossing the Robert E. Gabler farm.
Little Mahoning Creek	Indiana	4 miles	From the bridge at Rochester Mills upstream to Cesna Run.
Little Lehigh	Lehigh	1 mile	From Laudenslager's Mill Dam upstream to Township Road No. 508.
Slate Run	Lycoming	6.5 miles	Lycoming County, Brown Township; Tioga County, Elk Township.
Tioga	Tioga	.5 mile	
Loyalsock Creek	Lycoming	3 miles	From Lycoming County line downstream to Sandy Bottom.
Penns Creek	Mifflin	2 miles	From 300 feet below Winner's Cabins, Mifflin County, to the lower property line of A. T. Soper, including that portion of Cherry Run lying south of L. R. 59001.
	Union		
Big Bushkill Creek	Monroe	6 miles	On the Burns property, except 200 yards each side of the Boy Scout Camp.
Cross Fork Creek	Potter	3.5 miles	From the Campbell Bridge upstream to Hungry Hollow.
Lyman Run	Potter	4 miles	Above state park lake.
Clear Shade Creek	Somerset	1 mile	Upstream from cable located across stream 250 feet below Windber Water Dam (including dam).
Francis Branch, tributary to Slate Run	Tioga	2 miles	Elk Township, from mouth upstream to Francis Leetonia Road.
North Sandy Creek	Venango	2.5 miles	From L. R. 60073 in the Borough of Polk, upstream to bridge at the pump station of the Poik State School.
Caldwell Creek	Warren	1.5 miles	From the highway bridge at Selkirk to the highway bridge at Dotyville.
Dyberry Creek	Wayne	1 mile	From the Widmer property line about one mile below Tanner's Falls downstream to Mary Wilcox Bridge.
Bowmans Creek	Wyoming	2 miles	Dolls Bridge to Marsh Creek Bridge.
Muddy Creek	York	2 miles	From Bruce to Bridgeton.

Special Fly Fishing Regulations

FISH FOR FUN ONLY

Regulations on these waters are the same as for special fly-fishing streams except:

1. NO TROUT MAY BE KILLED OR HAD IN POSSESSION.
2. Open to fishing the year 'round.

Name of Water	County	Mileage	Location of Experimental Area
Left Branch of Young Woman's Creek and tributaries	Clinton	7 miles	From the state forest boundary upstream.
Right Branch of Young Woman's Creek	Clinton	1 mile	Upstream from dam on Renovo Country Club property.
Country Club Ponds	Clinton		On Renovo Country Club
*Fisherman's Paradise (Spring Creek)	Centre	.6 mile	Lower boundary of Spring Creek Hatchery grounds to the upper boundary of paradise.

*In addition to regulations 1 and 2 above, the following apply to the Fisherman's Paradise:

3. Fishing hours—One-half hour before sunrise to one-half hour after sunset.
4. No wading permitted.
5. Downstream from footbridge at Administration Building to lower end of Paradise, fishing permitted only from the east side of the stream.

EXPERIMENTAL FISHING REGULATIONS ON BEAVER DAM, HUNTINGDON COUNTY

(A cooperative project with Pennsylvania State University)

The following regulations will apply:

1. Opens to fishing April 14, 1962—Closes October 31, 1962.
2. Fly-fishing only (as defined in Special Fly-Fishing Regulations adopted for 1962).
3. Only two (2) trout may be killed in one day or in possession at the pond.
4. Possession of bait fish at the pond, worms or any type of natural bait prohibited.
5. Fishing permitted only from shore or by wading.

Commonwealth of Pennsylvania

PENNSYLVANIA FISH COMMISSION

Harrisburg, Pennsylvania

In Cooperation With Curtiss-Wright Corporation

RULES AND REGULATIONS

QUEHANNA AREA—SEASON 1962

1. **OPEN SEASON**—June 1 to September 3, 1962, inclusive.
2. **OPEN**—from 6:00 A.M. to 8:00 P.M. daily (E.S.T.).
3. All streams are open to fishing except Meeker Run, located above Blackwell Dam on Mosquito Creek, which is posted for security reasons.
4. All activity to be confined to, or adjacent to, streams.
5. All traffic and parking regulations as posted must be obeyed.
6. All access roads must be kept open for traffic at all times.
7. No fires will be permitted at any time.
8. No overnight camps.
9. All persons on the Quehanna site during this period must have a Pennsylvania fishing license.
10. All fishing rules and regulations to be same as those established for 1962 by the Pennsylvania Fish Commission.
11. Anglers must enter and leave Quehanna area through access gates designated by Curtiss-Wright Corporation. These gates are: the main gate, which is manned 24 hours a day, and the gates designated as Wykoff Run, Medix Run and Gifford Run.

NOTE TO ALL ANGLERS: The privilege of enjoying the fishing along the 40 miles of trout streams located within the boundaries of the Curtiss-Wright Corporation's Quehanna site has been extended to you by the Corporation in cooperation with the Pennsylvania Fish Commission. The manner in which each angler conducts himself while enjoying this privilege will, to a great extent, determine the year to year renewal of this privilege. Particular care should be exercised by all anglers to avoid litterbugging, prevent damage to the area by fire or other means, and to observe and respect all regulations concerning this project.

LETTERKENNY RESERVOIR REGULATIONS

THIS WATER AREA HAS BEEN MADE AVAILABLE FOR YOUR FISHING PLEASURE BY THE LETTERKENNY ORDNANCE DEPOT. ALL REGULATIONS OF THE PENNSYLVANIA FISH COMMISSION ARE IN FORCE.

THE FOLLOWING ACTIVITIES PROHIBITED:

1. Swimming; Boat Motors of All Types; Hunting; Sailboats; Ice Skating; Fishing from the Dam Breast; Pollution of the Waters of the Reservoir; Camping, Tenting or the Use of Trailers or Automotive Equipment for Living Quarters; Disposal of Trash or Rubbish Except in Containers where provided.
2. All Boats Must Pass Inspection by the Fish Commission.

3. All Boats Moored on the Reservoir Must Be Covered by a Permit.
4. All Boats Must Be Moored at Designated Area.
5. All Boats Must Carry a Life Preserver for Each Person in the Boat.
6. All Vehicles Must Be Parked in Designated Parking Area.
7. Fishing and Boating Hours: 5:00 A.M. to 9:00 P.M., Eastern Standard Time.

PENNSYLVANIA FISH COMMISSION
For Boat Mooring Permit and Inspection Contact:
District Warden BRYCE CARNELL
R. D. 1, SAINT THOMAS, PA.
Telephone EMpire 9-2511

STREAM NOTES

As I prepared to tack a poster (Fishing Prohibited, etc.) in the vicinity of Alderson, on Harvey's Lake, I observed one of a pair of fishermen suddenly drop his fishing rod which he had been using as a "jigging" pole. I noticed there was a total of seven tip-ups in their general vicinity, decided to investigate. When I asked for fishing licenses, the defendant said he was only visiting. I added, "And fishing." To which he replied in a beautiful Southern drawl, "No suh, ah jes poked that lil ole bug down that hole to see if there might be a lil ole perch down there." I informed him we called it "fishing" and this required a license.

He did not request a hearing, admitted having been wrong, claimed two of the seven tip-ups, and settled on a field receipt, \$25.00—**District Warden James F. Yoder** (Luzerne and Sullivan).

#

Setting nets in Conneaut Lake we managed to get them in before all the ice had gone off the lake. We had problems with the ice and nets the first day but solved our problems and had a good lift of northern pike already commencing to drop eggs. Had we waited three days for the ice to go out normally we would have missed untold numbers of spawning fish. The first three days of fishing netted us over 200 pike.—**District Warden Raymond Hoover** (Crawford).

#

We had many sportsmen out to help stock Spring Creek this season. One sportsman saw a large water snake sunning itself on the bank. He reached down, picked it up. The snake struck viciously several times but failed to hurt his captor. The sportsman had lost an arm during the war and the hook he used for a hand exerted great pressure. The snake died quickly.—**District Warden Lee F. Shortess** (Lycoming).

#

It seems everyone met the fish trucks this year. **District Warden Kenneth Aley** (Potter) met some real veterans at the game: Bert Palmatier, 80, Carl Dunbar, 73, A. I. Sugden, 72, and Paul Jackson, 60, all of Genesee, Pa. Warden Aley reported them all active and eager to help with stocking chores.

#

During June of the '61 season a Corgansville, Md., angler, fishing for trout in Wills Creek, Bedford County, hooked a rattlesnake that was swimming the stream. It was 44 inches long, had 10 rattles and a button.—**District Warden William E. McInay** (Bedford).

#

The past winter was one of the best for ice fishing in my district, with exceptionally good catches of perch and bluegills reported, including nice bass, pickerel and walleye.—**District Warden Stephen A. Shablick** (Wyoming).

#

While lifting nets on Conneaut Lake to acquire northern pike and walleye spawn, a 27-inch northern was taken from the net that had a hook attached to its lower jaw with about three feet of mono line. **Supervisor S. Carlyle Sheldon** and **District Warden Raymond Hoover** figured we might be able to describe the type of knot tied so some angler could be advised how big the big one was that got away.—**District Warden Norman E. Ely** (Erie).

#

District Warden Clifton E. Iman (Butler and Beaver) reports while stocking trout in Bradys Run, Beaver County, a sportsman carrying fish told him he saw some fish in the stream he could not identify. Checking the fish I found they were gizzard shad, all around 10 inches long, new to Beaver County.

WARDEN OF THE MONTH



—Scranton Times photo by Bob Jennings

DISTRICT WARDEN STEPHEN A. SHABBICK, Wyoming County, has been awarded the "Warden of the Month" citation by the Pennsylvania Fish Commission for the third straight month in state-wide competition. Presenting the award and a color plaque (from left) are H. Clair Fleeger, Honesdale, Regional Warden Supervisor, and Gerard Adams, Hawley, President of the Pennsylvania Fish Commission. The award is based on promotion of the Commission's official magazine, PENNSYLVANIA ANGLER.

Six men were fishing behind a large windbreak on Presque Isle Bay, Erie County, having a lot of fun. The day was clear, rather warm for late winter. Perch were biting regularly. Suddenly, from behind the windbreak, **District Warden Norman Ely** appeared. The usual routine of checking licenses, inspecting the catch, etc., was completed and friendly exchange of fish stories was featured. Warden Ely told them of trout streams scheduled for stocking in Erie County, new boating access area and how swell it was to be outdoors. The fishermen fully agreed and then Ely sprang the trap. With a sly grin Warden Ely asked the men if they had ever heard of a magazine salesman selling subscriptions out on the ice. The fishermen laughed heartily with a big "NO!" Ely produced his subscription book for the PENNSYLVANIA ANGLER. After the looks of surprise faded from their faces, Warden Ely just walked away with \$6 and three subscriptions. Talk about HARD SELL!—**Warden Supervisor S. Carlyle Sheldon** (Northwest Region).

#

District Warden Clarence W. Shearer (Venango) reports he has had more assistance, more sportsmen out for stocking the streams this year than any period in his memory.

#

Sucker fishing in the Allegheny River has been very good with many of these fish taken near Tionesta, Hunter Station and East and West Hickory. Warmer weather gets both angler and fish in the mood.—**District Warden Norman L. Blum** (Forest and Clarion).

CLUB MEMOS

Potter County Clubs Complete Nursery Trout Stocking

The following Potter County Sportsmen's Clubs have completed stocking of trout from cooperative nursery waters: Potter County Angler's Club—25,000 brook and brown trout, East Fork Sportsmen's Club—6,000 brook trout, Austin-Costello Sportsmen's Club—5,000 brook trout, Roulette Rod and Gun Club—5,000 brook trout, and Kettle Creek Sportsmen's Club—10,000 brook trout.

The **West Chester Fish and Game Association** is planning its 25th Anniversary celebration in June with a fine program in preparation. Profit from the Wally Tabor show held in March will be used to help with the expenses of the Fishing Rodeo for youngsters on Saturday, August 25.

Fishermen in Elk County, spurred to action by Clyde Piccirillo and James McLaughlin, organized the **Elk County Anglers Club** recently. The club was formed for the main purpose of preserving and increasing fishing facilities in the area. Also, assist in stream stocking, promote cooperative trout rearing ponds, fingerling program, stream improvement.

Pennsylvania Outdoor Writers Hold Spring Meeting in Harrisburg

James W. Markham, Professor of Journalism at Pennsylvania State University, was the principal speaker at the spring meeting of the Pennsylvania Outdoor Writers Association. More than 80 representatives of press, radio and television gathered in Harrisburg on March 31 to hear Dr. Markham discuss "Information versus Understanding."

The Association voted to hold a spring workshop at Conneaut Lake, May 11-13, at the invitation of the Crawford County Tourist Association. The three-day meeting will feature field trips to the Pennsylvania Fish Commission's world-famous fish hatchery at Linesville, the Pymatuning Waterfowl Refuge and Museum, and other points of interest in the area. In further action, the Association voted to extend an invitation to the Outdoor Writers Association of America to hold their 1964 convention in Erie. The Greater Erie Chamber of Commerce will serve as co-hosts of this national meeting which attracts over 500 writers, broadcasters, artists, photographers and their families.

Ralph Widner, Assistant Director of the State Planning Board, spoke on "Project 70" at the association's spring banquet, Saturday evening. The meeting was conducted by Will Johns, of Hershey, Association president. Other officers are: Roger M. Latham, Pittsburgh, vice president; Mark Passaro, Allentown, vice president; LeRoy Manning, Prospect Park, treasurer; and Dave Fisher, Allentown, secretary.

Outdoor recreation is not the frosting on the cake; it is one of the important ingredients of life.



PINNED . . . and now District Fish Warden Leland Cloos (Tioga) is a new "Girl Scout." Sharon Boyce of Girl Scout Troop 160 of Wellsboro, Pa., makes him an honorary member of the troop.

Wellsboro Girl Scouts Prove Good Sports

Despite a torrential downpour and flooded highways, a dozen Girl Scouts of Troop 160 of Wellsboro kept an appointment with the Pennsylvania Fish Commission to stock 1,950 trout in Asaph Run, recently. Special arrangements had been made with the Fish Commission by District Fish Warden Leland Cloos for delivery of the trout.

Although the road from Asaph to the headwaters of the creek was under water in many places and covered with several inches of slush ice in the shaded areas, the scouts followed the state nursery truck and members of the Ansonia Rod and Gun Club without hesitation.

Due to the flooded condition of the creek and the danger of the girls slipping into the rushing current, long-handled nets were used to transfer the trout from the state truck to the creek.

The scouts formed a chain around the truck to the edge of the water to keep from slipping. After the stocking was completed, the girls were invited to the Ansonia Hotel where the Ansonia Rod and Gun Club had prepared a hot dinner for them.

Leland Cloos was presented a scout badge and named an honorary member of the scout troop in appreciation for his cooperation with the project.

Cloos said the Wellsboro Girl Scouts were the first in the state to assist in stocking trout. "They were real sportsmen," he said, "To go through with the project under weather conditions that would have kept a lot of the adults at home."

How Long Can the Forces of Nature Compete Against the Forces of Society Without the Concepts of Conservation as a Mediator?

By JOHN W. BERTHOLD, III

Every American owes it to himself to be informed on natural resources and their conservation. We must be concerned with the basic earth materials—water, soil, plants, animals, and minerals—that we use to sustain our society and material culture. The conservationist deals with two great groups of resources, perpetual and fugitive. Perpetual resources are those such as water, soil, plants, and animals. These are the ones which renew themselves unless badly abused. However, fugitive resources such as minerals are not renewable and serve us only once. In this age of technology, minerals have attained pre-eminence; but it is almost certain that they will lose this position as each eventually becomes exhausted. It is evident, therefore, that as minerals grow scarce, our society will depend more and more on those resources which can be renewed. So we must conserve these renewable resources.

Water conservation begins with the rain drop. In other words, the water of real service to us is that which falls to the land and either soaks in or runs off the surface. Since our most usable water is always on its way to the sea, it can render much greater service with proper management and engineering. Contrary to popular belief, ground water supplies are limited. The only way to maintain them is to take out no more water than goes in. Unless we do this, we will eventually pump the land so dry underneath that we shall be forced to change our whole scheme of water supply.

Our losses of soil have been drastic, and the continuing losses are great. We cannot recover soils eroded away, but we can hold and fortify those soils which remain. More people, urban and rural, must see the relationship between soil conservation and individual well-being. They must learn that the soil supports all of us and is necessary for our survival. Economic system dictates conservation of natural resources. As our nation expanded and became more settled both geographically and politically, one might say it reached maturity and lost the rash impetuousness of youth. With this maturity came moderation of extravagance and a realization of the depreciation of natural resources. Men could no longer travel to a fresh, new environment. They would have to improve the one they had defaced. So, men turned to new frontiers more challenging and rewarding than those known to the pioneer—the modern frontiers of conservation.

Because of past and present necessity, the modern conservationist has come into existence. He is a leader who advances society by participating in group activity to achieve results favorable to conservation and the benefit of all. Conservation then becomes a collective endeavor, elevating the individual and the group where-



JOHN BERTHOLD, III, age 16, winner of Pennsylvania Federation of Sportsmen's Club's top essay award. An eleventh grade student at Susquehannock High School, he is a member of the National Honor Society. His future plans are uncertain but he hopes to enter an engineering college in the fall of 1963. Music and amateur radio are his hobbies.

in each participant helps the nation by helping himself. If simple conservational practices such as turning off a running water faucet or switching off a light in an empty room are followed by Americans, nature and society will be forever coalesced in harmony.

Our country's future depends upon wise use of our natural resources today. We can keep our economic leadership only by following this policy. If we allowed abuse and waste of natural resources to continue, we would not only lose our material standing but our democratic freedoms as well. Since many losses of natural resources are complete and final, we must take the utmost care not to deplete, knowingly or unknowingly, our natural wealth.

It is said that in the very near future our excessive population will eat itself right out of existence. Conservation is the only solution to this probable assumption. With our great abundance of natural wealth controlled by a scientific method of conservation, we will hold the key to the future, one far beyond the currents of shifting politics. We must also realize that conserved resources not only guarantee strength with which to defend attack; they provide an assurance of prosperity after the attack is ended. Conservation must attack the cause of calamity and not the calamity itself. It must seek out causes in time to prevent consequences.

It must be understood that it is impossible to conserve one natural resource without regard to the others because all natural resources are intimately related to our environment. Therefore, we must not make the mistake of engaging in specialized conservation of one resource while being oblivious of the ones closely related to it.

One can easily see then, that conservation is a very
(Concluded bottom page 20)

Tackle Tips . . .

BRACKET FOR OARS

By DON SHINER

A MOST helpful device for oars can be fashioned from a common wire clothes hanger. Bend the wire to form a U-shaped bracket to hold the oar, with the curved handle hooking over the boat side (see illustration). When you stop rowing, drop the blades of the oars into these wire brackets. The oars are then suspended out of your way. These brackets hold the oars nicely when the outboard is in operation instead of letting oars drip water inside the boat or on equipment on the boat floor.

Actually, the common clothes hanger can be adapted to innumerable uses for the fisherman. For example, by bending the bottom horizontal wire into a series of scallops, similar to a garden rake, it becomes an excellent lure holder for the quick-change artist. The scalloped teeth will keep the lures separated and prevent hooks from tangling. Again, the curved handle permits hooking to the boat side.

A wire clothes hanger can be made into a gaff for landing husky walleyes and pike. Hold the curved hook in one hand while grasping and stretching the bottom horizontal wire into a long handle. The curved hook can then be used to gill-land the catch.

This same gaff will assist in freeing a snagged lure. The bent hanger becomes an extension to your arm when reaching down into the pond to unsnarl a plug or spoon.

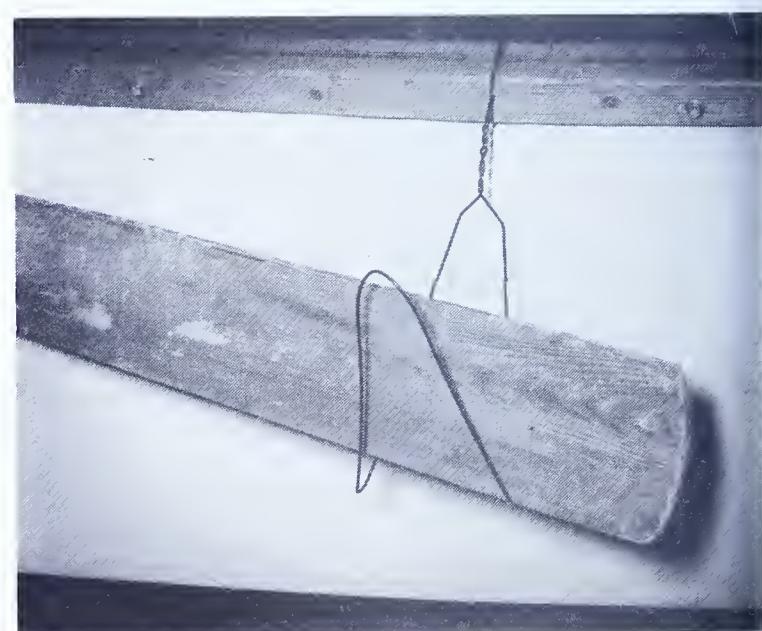
The hanger can be made into a bracket for a flashlight so the light may be propped on the boat seat during night fishing episodes. In this way, your hands are free to untangle a backlash, unhook a bass or apply mosquito dope.

This common wire clothes hanger can also furnish a dandy rod holder when fishing from the stream bank.



BEND A COMMON WIRE clothes hanger into this shape for a bracket for the oars.

CURVED HANDLE fits well over the boat side, while the bent hanger supports the blade of the oar. Oars are held out of your way.



Prize Winning Essay (concluded)

By JOHN W. BERTHOLD, III

necessary part of our modern life. However, the worst obstacle to conservation is the ignorance and apathy of the public toward the problems of our natural resources. It is very necessary that the general public becomes informed about the aims and purposes of conservation in modern society, and as a result, take steps to achieve good resource management. The American citizen will be the one to determine how well we conserve our natural wealth because every citizen in a democracy is a policy maker. The first aim of a conservationist, then, should be to arouse the interest of the citizen and to

inform him about conservation.

It should become evident as a result of the statements expounded herein, that the concepts of conservation are closely intertwined with modern society. Some type of conservation has always been in existence and has served as a basis on which to found and build society. The future will be what our actions make it. If we continually persist in waste and abuse of our natural wealth, we shall indeed starve. We must resolve to conserve our natural resources if our society and heritage are to be preserved.

BASIC NYMPHS

By CHAUNCY K. LIVELY

BECAUSE of the very manner in which they are fished, nymphs are subject to closer scrutiny by the trout than perhaps any other artificial fly. And as such, they are deserving of the fly tyer's best efforts toward reasonably close imitation of the naturals.

Most of our trout stream nymphs are flattish in appearance and sombre in coloration, with segmented bodies and tiny, featherlike gill appendages. There are many materials which can be used to imitate these features but particularly suitable are the individual fibres of wing and tail quill feathers from the larger birds. To achieve the flat bodied effect, so characteristic of most of the naturals, I like to cement a strip of .025 lead wire or nylon leader material along either side of the hook shank, making a flat underbody over which any body material can be wound. On all patterns except the Stonefly nymphs the lead or nylon strips are tapered toward the rear of the hook. It is advisable to have a supply of both the weighted and

The Feminine Angle

THE MISERABLE GOOD TIMES

By MARION LIVELY

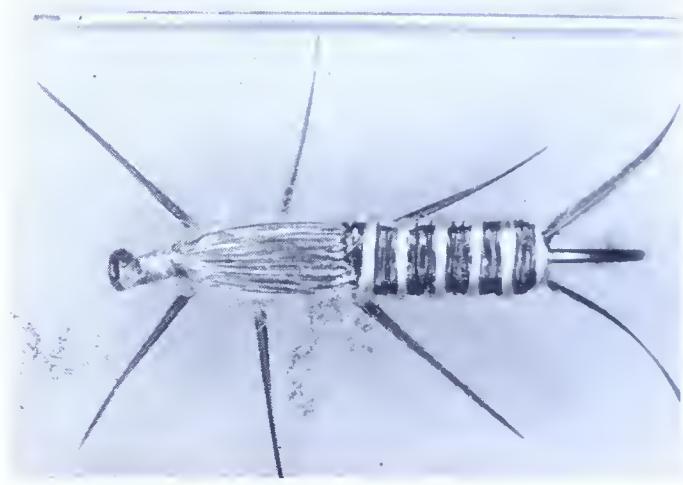
COME high water, rain, snow, sleet, and punkies, the prospect of a day's fishing puts one in expectation of having a good time; and one of the charms of fishing is that, because you expect to, you do have fun even under the most adverse circumstances. Much as one enjoys remembering the day he lost that monster trout that had him out on his backing four times, or the tremendous battle that eighteen-inch brownie put up on that featherweight rod, or that steadily rising eight-incher that was so selective that it took an hour before you finally netted and released him; the trips that fishermen remember most vividly and laugh about long afterward seem to be the ones where everything goes wrong.

Did you ever forget the lunch or drive seventy miles only to have to turn around and start over because someone forgot his license—or the rod case? . . . Ever fish in gloves because it started to snow on what started out to be a lovely April day? . . . Have porcupines spend the night chewing holes in your new tent? . . . Drive a hundred miles to find your pet stream spilling out of its banks because there had been a cloudburst the night before? And, because hope springs eternal and fishermen are ever optimistic, you say . . . (no, let's face it, I'm the one who usually utters the fateful words), "Let's go over the mountain to Such-and-Such Creek. It probably didn't rain over there." It did. And it did over the next mountain, too. So you stop and fish awhile anyway, because, after all, that's what you came for, didn't you? All right—so you didn't catch any fish that day, but you know they're there and there is always a better day ahead. And you did find a beaver dam and see your first bald eagle . . . and everyone sang all the way home. You got pretty good, too, because you had lots of time to practice; that mountain hopping had taken you a long way from home. Somehow, it turned out to be a wonderful, hilarious day; a good day to tuck away and bring out to relive on some cold winter evening.

unweighted versions of each pattern on hand in order to take advantage of varying stream conditions. For easy identification I tie off the heads of my weighted nymphs with colored silk and the unweighted with white silk.

Utilizing the same general design, the five basic nymph patterns shown in the accompanying microphotos represent imitations of specific naturals, but each can be easily modified in dressing to imitate other related species as well.

Dressings for these nymphs, listed in tying sequence, are as follows:



1. Banded Stonefly Nymph

Hook—Size 10, 4x long

Tails—Two short curved fibres from duck wing quill—dark brown

Ribbing—Fine yellow floss

Abdomen—Two center ribs from large ginger hackles with fibres stripped. Wind to thorax position, tie off, and coat back only with brown lacquer. While lacquer is still tacky wind floss ribbing forward

Wing Case—Section of gray goose quill

Legs—Six dark brown fibres from duck wing quill—set in cement.

Thorax—Dubbing of tawny Australian Opossum fur

The Banded Stonefly Nymph is a favorite for big trout and should be fished in boulder strewn pocket water and where heavy riffles spill into the heads of deep pools.



2. March Brown Nymph

(Turn Page)

2. March Brown Nymph

Hook—Size 12, 3x long
Tails—Three dark brown wing quill fibres
Abdomen—Dark brown condor quill fibre
Wing Case—Section of gray goose quill
Thorax—Dubbing of mixed brown seal and beaver fur
Legs—Fibres of grouse breast feather—tied as throat

The same dressing on a size 12 regular shank hook makes a good Cahill nymph. And by changing the thorax to a dubbing of Cross fox fur on a No. 12 regular hook you will have a Hendrickson nymph.



3. Ginger Quill Nymph

Hook—Size 12, regular shank. Underbody is wound over with golden brown tying silk
Tails—Three wood duck fibres
Abdomen—Dark cream fibres of condor tail feather
Wing Case—Gray goose quill section
Thorax—Dubbing of fox or Australian Opossum fur
Legs—Partridge—tied as throat

When wet, the light condor body material becomes semi-translucent and allows the brownish underbody to show through.



4. Isonychia Nymph

Hook—Size 12, 4x long
Tails—Three short brown wing quill fibres. Draw each fibre through thumb and forefinger to get a webby effect
Abdomen—Dark brown condor quilly fibre
Wing Case—Gray goose quill section
Thorax—Dubbing of dark brown seal fur
Legs—Grouse—tied as throat

This is the nymph of the "Lead Wing Coachman" and should be fished near the edges of pools when the flies are hatching. By tying this pattern on a size 10, 4x long hook and using mink for thorax dubbing it becomes a Green Drake nymph.

Dog With 'Taking' Ways Irks Anglers

Fish in the West Branch of the Conococheague Creek, Franklin County, have a champion in a young German shepherd dog that patrols (unofficially) the banks of the stream in the vicinity of Williamson. If an unfortunate sucker winds up on the stringer of some fisherman it won't be because the dog warden isn't "johnny-on-the-spot."

Three anglers, Ray Salmon, Frank Reed and John Cramer, went fishing for suckers recently. Their worm can, unattended, was neatly removed by the pup. Later he came back and took the lid to the can.

Next trip, the same anglers returned to the same location, laid down their rods, prepared to fish. Same dog saw his chance, rushed up, grabbed Reed's rod and took off! Dangling line caught in some brush and the owner was barely able to retrieve his rod.

The trio then fished with one eye on their lines, the other peeled for the purloining pup.

Pymatuning Agreement Reached

Pymatuning Reservoir will be open to fishing with creel limits on three species of game fish. The Ohio Wildlife Council recently approved a five-year agreement setting the creel limits on bass, walleye and muskellunge as the only restrictions to taking fish from the Reservoir on the Pennsylvania-Ohio border.

The new regulations will permit daily limits of 10 each of bass and walleye and possession limits, after the first day, of 20 each. The muskellunge daily limit was set at 2 and the possession limit at 4. There will be no size limit or closed season on these species. There will be no season, size or creel limits on all other species.

These regulations were recommended March 27 during a joint meeting of Pennsylvania and Ohio officials. They were a compromise between the two states which jointly own the Reservoir.

Postscript to article by Robert Bielo on page 4

by Kenneth J. Andrews

Most fishermen have heard tales of catching fish on bare hooks, but very few have experienced such an occurrence. This was my situation until May, '61, when I tried fishing for herring in the Delaware River. These fish migrate in large schools up the river to spawn and are similar in appearance to shad except they are smaller, usually running 10-12 inches in length. When hooked they put up a good scrap, break water several times before landed. I have landed upwards of 15 fish in an hour's time, losing twice that many because of their tender mouths.

The most effective lure for herring is a No. 6 gold-plated hook, although very small gold spinners work well at times. Put a small split shot on your leader about 6 inches ahead of the hook and retrieve as you would a spoon, in spurts and jerks.

While these fish migrate many miles above Morrisville, the best fishing seems to be in and below the rapids at Morrisville.

Due to their numerous small bones, herring have little value as a food fish, although some people pressure cook and pickle them. But, for fishermen like myself who would rather catch them than eat them, the herring has opened a whole new area of exciting fishing activity.

Juniata Yields 52-Pound Carp

A Saltillo, Pa., fisherman landed what may be the record carp for Huntingdon County. George Brown of Saltillo, using an 8-pound test line, landed a 52-pound carp in the Juniata River near Mt. Union. The fish was 44 inches long.

BIOLOGY BRIEFS

Creel Census Reveals Heavy Initial Catch in Belmont Lake

After repairs to the dam breast and building an access road and a sixty-car parking lot had made Belmont Lake in Wayne County accessible to the anglers, the Pennsylvania Fish Commission opened it to public fishing on June 17, 1961.

Special regulations are in effect on this 170-acre lake whereby pickerel must be 18 inches, bass 12 inches and walleye 15 inches before they can be creel. The daily limit for these game species was reduced to three each for pickerel and walleye and three for the combined bass species (both largemouth and smallmouth bass present). The purpose of these special regulations is to provide larger fish over a longer period of time for the Pennsylvania angler.

A creel census conducted during the first nine days of the open season yielded some startling facts. During the first twenty-four-hour period that Belmont Lake was open, 2,868 fish were caught. This was an average of one fish caught every thirty seconds! Seven thousand three hundred and forty-one fish reached the anglers' creels during the nine-day census period. Estimated weight of these fish was from two to two and one-half tons. A complete analysis of this creel census will appear in a future issue of the ANGLER.—Terry D. Rader, Regional Fishery Manager, Pennsylvania Fish Commission.



MUSKIE FROM TEN MILE CREEK (South Fork), near Borough of Waynesburg, was caught last June '61, by Larry Scandale, 15, of West Waynesburg, Greene County. The fish was 30 inches long, weighed 10 pounds.



"That guy musta' hooked a fairly nice fish!"

HIT THE FISHING TRAILS

with these SPECIAL...DETAILED...COUNTY WATER-HIGHWAY MAPS OF PENNSYLVANIA

Note: Your choice of any county map free with every new or renewal subscription to PENNSYLVANIA ANGLER. (See Back Cover for special offer.)

No.	Description	Unit Price	Total
-----	Allegheny	35¢	-----
-----	Armstrong	35¢	-----
-----	Bedford	35¢	-----
-----	Berks	35¢	-----
-----	Blair-Cambria	50¢	-----
-----	Bradford	35¢	-----
-----	Bucks-Montgomery	50¢	-----
-----	Butler	35¢	-----
-----	Cameron-Elk	50¢	-----
-----	Carbon-Monroe	50¢	-----
-----	Centre	35¢	-----
-----	Chester-Delaware	50¢	-----
-----	Clearfield	35¢	-----
-----	Clinton	35¢	-----
-----	Crawford	35¢	-----
-----	Cumberland-Adams	50¢	-----
-----	Dauphin-Lebanon	50¢	-----
-----	Erie	35¢	-----
-----	Fayette	35¢	-----
-----	Franklin-Fulton	50¢	-----
-----	Huntingdon	35¢	-----
-----	Indiana	35¢	-----
-----	Jefferson-Clarion	50¢	-----
-----	Lackawanna-Wyoming	50¢	-----
-----	Lancaster	35¢	-----
-----	Lawrence-Beaver	50¢	-----
-----	Lehigh-Northampton	50¢	-----
-----	Luzerne	35¢	-----
-----	Lycoming	35¢	-----
-----	McKean	35¢	-----
-----	Montour-Northumberland	50¢	-----
-----	Perry-Juniata-Mifflin	50¢	-----
-----	Pike	35¢	-----
-----	Potter	35¢	-----
-----	Schuylkill	35¢	-----
-----	Somerset	35¢	-----
-----	Sullivan-Columbia	50¢	-----
-----	Susquehanna	35¢	-----
-----	Tioga	35¢	-----
-----	Union-Snyder	50¢	-----
-----	Venango-Mercer	50¢	-----
-----	Warren-Forest	50¢	-----
-----	Washington-Greene	50¢	-----
-----	Wayne	35¢	-----
-----	Westmoreland	35¢	-----
-----	York	35¢	-----
Total Cost			
Plus 4% Pa. Sales Tax			
Amount of Order			

Please send to:

Name _____

Address _____

Town _____

Make check or money order payable to the Pennsylvania Fish Commission.

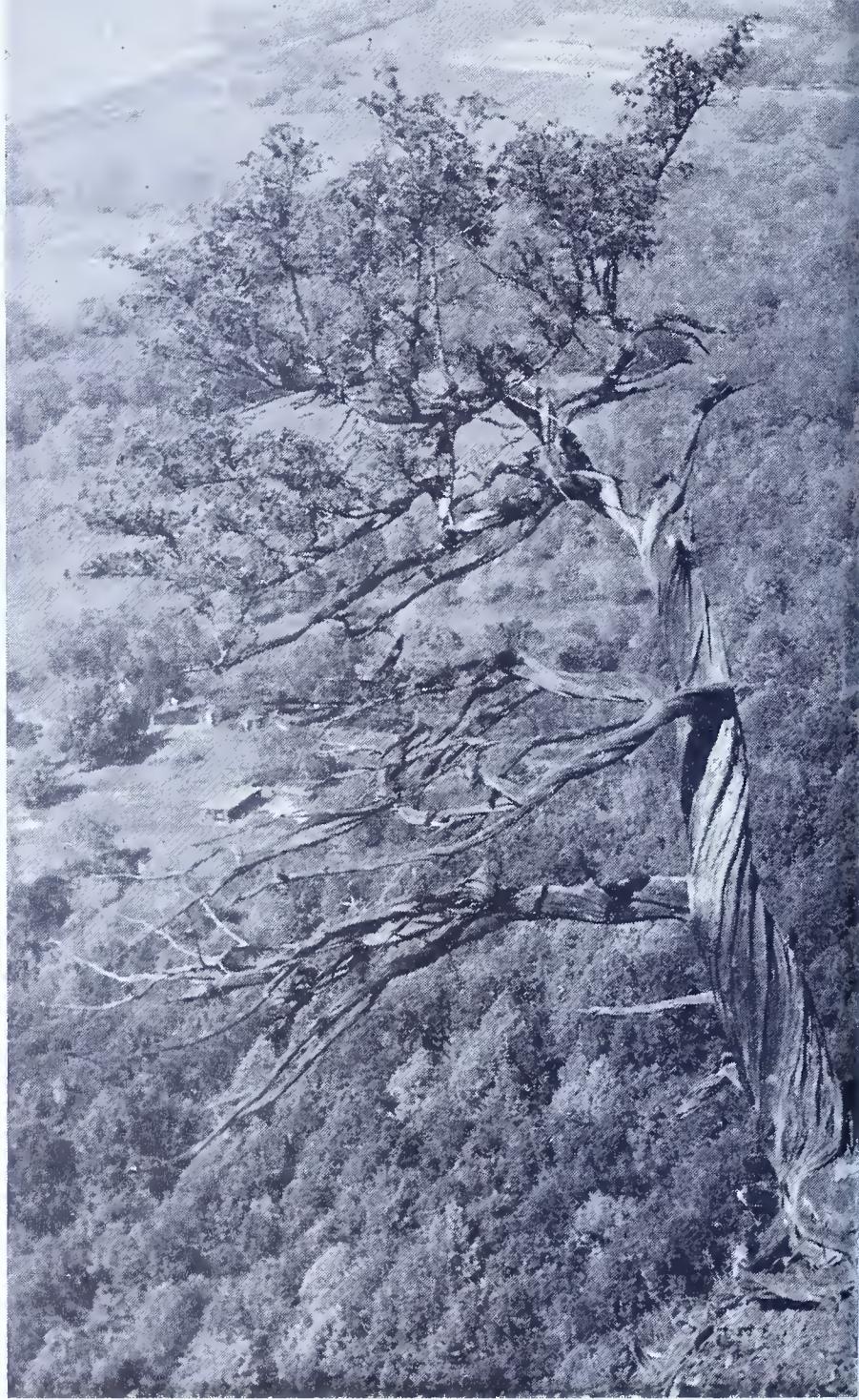
Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

PICTURE OF THE MONTH

Nature Does the Twist

A cedar tree hanging desperately to the side of a rock bluff known as "Council Cup," near Wapwallopen, Luzerne County. Strong winds and more than one tempest have twisted it to a corkscrew shape. This "look-out" is on North Branch of Susquehanna River affording one of the many outstanding scenic views of Pennsylvania.—Photo by Don Shiner



CLIP HERE

Enclosed is \$2.26 for the FULL CREEL shown on inside back cover:

- 1) One (1) year's subscription (new or renewal) to the PENNSYLVANIA ANGLER.
- 2) Copy of Pennsylvania Fishes.
- 3) Free copy Reptiles and Amphibians of Pennsylvania.
- 4) Free Pennsylvania Waters-Highway Map (County of your choice).
- 5) Pocket card to determine age, weight of fish you catch.

Please send to:

Name _____

Address _____

Town _____

Indicate Free Map choice county _____

Make check or money order payable to the Pennsylvania
Fish Commission

Mail to—PENNSYLVANIA FISH COMMISSION
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

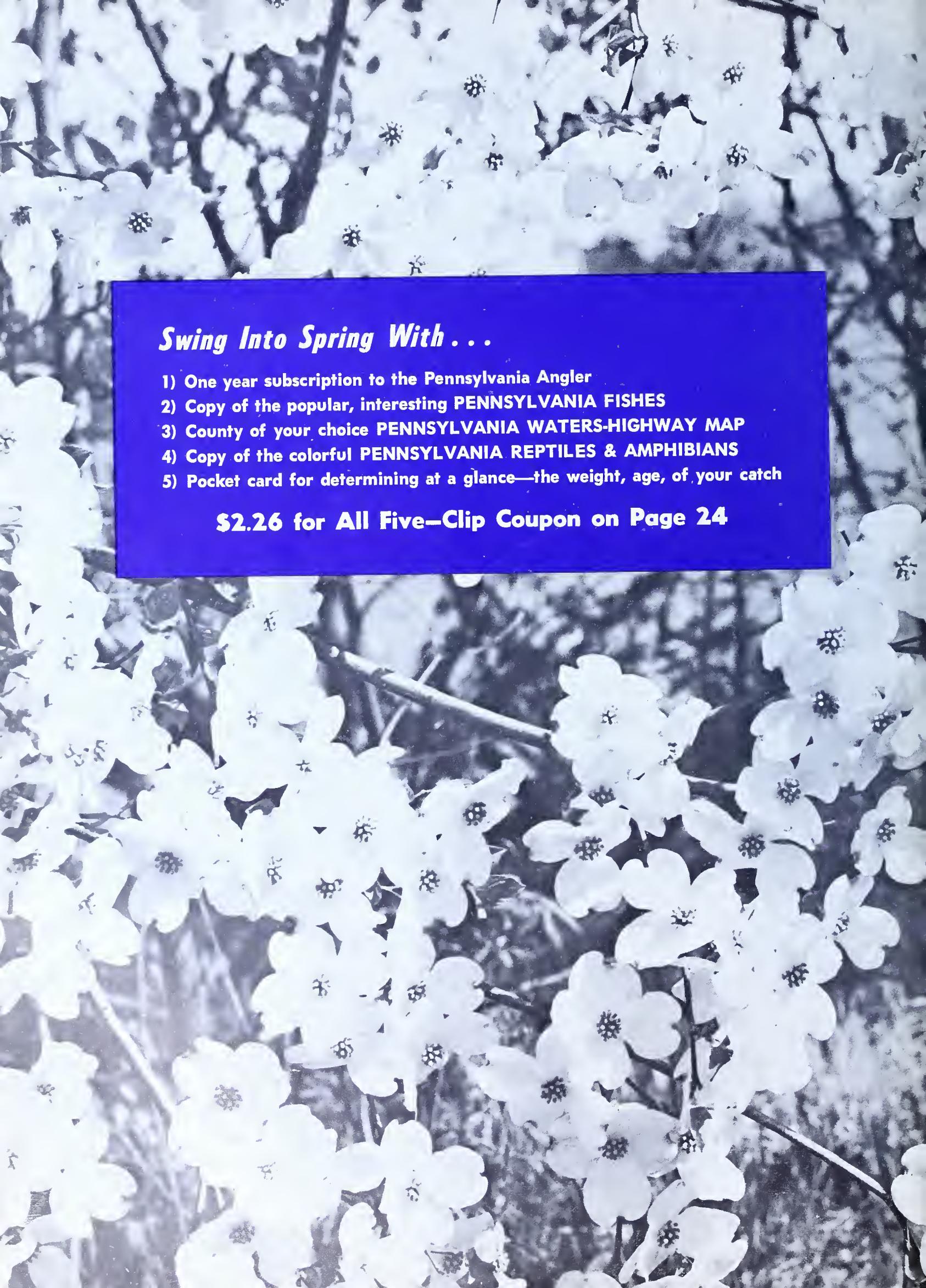
OUTDOOR CAMERA FANS! . . . we'd like to print your "Picture-of-the-Month," giving you a byline and sending it around the world with the PENNSYLVANIA ANGLER. Send us your 5 x 7 or 8 x 10 glossy (black and white only) prints of any outdoor subject relative to fishing, boating, stream life, scenic water-scapes including the beautiful, the odd and the unusual. Prints should include on the back: Information on where taken, when, plus other data useful for identification. All reasonable care will be taken in handling, returning those we do not select. Copies of the ANGLER issue in which your "Picture-of-the-Month" appears will be sent to you. Send all prints to the Editor, PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.

Regular Fish Wardens of the Pennsylvania Fish Commission

Chief Fish Warden—W. W. Britton, Harrisburg.

Phone Hbg., CEdar 8-5151, Ext. 2077

Name	Address and County	Telephone
NORTHWEST REGION		
Sheldon, S. Carlyle	1212 E. Main St., Conneautville: Regional Warden Supervisor	3033
Abplanalp, J. Richard	R. D. 7, Mercer: Lawrence and Mercer Co.	1344-J
Blum, Norman L.	Tionesta: Forest and Clarion Co.	PLymouth 5-3585
Corey, Kenneth G.	18 N. Main St., Clarendon: Warren Co., Warren	RAndolph 3-9498
Ely, Norman E.	134 W. 1st St., Waterford; Erie Co.	SWift 4-5571
Hoover, Raymond L.	R. D. 3, Conneautville: Crawford Co.	3364
Iman, Clifton E.	300 Belle St., Evans City: Butler and Beaver Co.	6080
Shearer, Clarence W.	Box 236, Cooperstown: Venango Co.	HEmpstead 9-2981
NORTHCENTRAL REGION		
Buck, John I.	P. O. Box 150, Lock Haven: Regional Warden Supervisor	748-7162
Aley, Kenneth	Galetton: Potter Co.	159
Ambrose, Bernard D.	P. O. Box 3, Ridgway: Elk County	PProspect 2-3151
Antolosky, Paul	320 E. Bishop St., Bellefonte: Centre Co.	ELgin 5-9681
Cloos, Leland E.	Middlebury Center: Tioga Co.	74
Fry, Richard W.	600 Walnut St., Mifflinburg: Snyder and Union Co.	WOodland 6-4024
Miller, William R.	416 W. 6th St., Emporium: Cameron Co.	4455
Ogden, Lester C.	316 Turnpike Ave., Clearfield: Clearfield Co.	POplar 5-8330
Shortess, Lee F.	P. O. Box 622, Williamsport: Lycoming Co.	323-9683
Williams, Wilbur	R. D. 1, Smethport: McKean Co.	656-R-1
Wilson, Lloyd	Box 546, Lock Haven: Clinton Co.	748-4474
NORTHEAST REGION		
Fleeger, H. Clair	Box 64, Honesdale: Regional Warden Supervisor	253-3724
Bartley, Joseph E.	Tafton: Pike Co.	Hawley 226-3508
Hazen, James F.	46 Fairview Ave., Mt. Pocono: Monroe Co.	TERminal 9-9922
Lazusky, Walter G.	714 Kossuth St., Throop: Lackawanna Co.	HUnter 9-9985
Litwhiler, Charles C.	Numidia: Columbia, Montour and Northumberland Co.	799-2734
Noll, G. Max	2 Church St., Montrose: Susquehanna Co.	149-M
Ohlsen, Frederick W.	P. O. Box 163, Jim Thorpe: Carbon Co.	325-3037
Persun, Willard G.	R. D. 1, Towanda: Bradford & W. Sullivan Co.	ANdrew 5-2947
Reynolds, Harland F.	P. O. Box 445, Honesdale: Wayne Co.	253-0724
Shabbick, Stephen A.	61 Franklin Ave., Tunkhannock: Wyoming Co.	TERrace 6-7836
Yoder, James F.	R. D. 1, Sweet Valley: Luzerne and E. Sullivan Co.	GRenleaf 7-2331
SOUTHWEST REGION		
Jones, Minter C.	R. D. 2, Somerset: Regional Warden Supervisor	6913
Banning, James H.	1003 Grandview Ave., Connellsville: Fayette Co.	MArket 8-1871
Baughman, Claude B.	805 Walnut St., Roaring Spring: Blair Co.	384
Davis, Dean R.	R. D. 4, Punxsutawney: Jefferson Co.	938-9372
Dick, Joseph S.	Box 64, Friedens: Somerset Co.	Somerset 7763
Discavage, Anthony	Box 528, Kittanning: Armstrong Co.	LIBerty 2-4021
Euliano, Bert	559 Country Club Rd., Washington: Washington and Greene Co.	BAldwin 5-5263
Henderson, Sam F.	R. D. 2, Greensburg: Westmoreland Co.	TEmple 4-4143
Kulikosky, Frank A.	Box 232, Ebensburg: Cambria Co.	GRenleaf 2-9321
Paulakovich, Stanley	Box 241, Oakmont: Allegheny Co.	VAn Dyke 8-7819
Walker, Arthur L.	365 Ben Franklin Rd., North, Indiana: Indiana Co.	465-7155
SOUTHCENTRAL REGION		
Corbin, Harold	521 13th St., Huntingdon: Regional Warden Supervisor	MIchell 3-0355
Carnell, Bryce	R. D. 1, St. Thomas: Franklin and Fulton Co.	EMpire 9-2511
Karper, Thomas B.	Box 92, Mt. Holly Springs: Cumberland and W. Adams Co.	HUnter 6-5141
Long, C. V.	East Waterford: Juniata and Perry Co.	REdfield 4-4151
McIlnay, William E.	203 W. Barclay St., Bedford: Bedford Co.	623-6529
Owens, Richard	504 Pennsylvania Ave., Huntingdon: Huntingdon and Mifflin Co.	MIchell 3-3846
SOUTHEAST REGION		
Ogden, John S.	1130 Ruxton Rd., York: Regional Warden Supervisor	2-3474
Barnhart, B. F.	R. D. 1, Elizabethville: Dauphin and N. Lebanon Co.	ENDicott 2-8413
Bednarchik, Raymond A.	300 W. Pennsylvania Ave., Downingtown: Chester, Delaware and S. Berks Co., ANDrews 9-3054	
Betts, Robert M.	2272 Manor Ridge Dr., Lancaster: Lancaster and S. Lebanon Co.	EXPress 3-6247
Burkhart, Walter J.	P. O. Box 2, West Point: Montgomery and Philadelphia Co.	OXbow 9-9426
Lech, Anthony J.	420 Hess St., Schuylkill Haven: Schuylkill and N.W. Berks Co.	385-1922
Martin, Paul, Jr.	201 Wynwood Rd., York: York and E. Adams Co.	47-6511
Sickles, Norman W.	1249 Pennsylvania Ave., Emmaus: Lehigh and N.E. Berks Co.	967-1283
Witt, Miles D.	R. D. 1, Leithsville, Hellertown: Northampton and Bucks Co.	838-9566



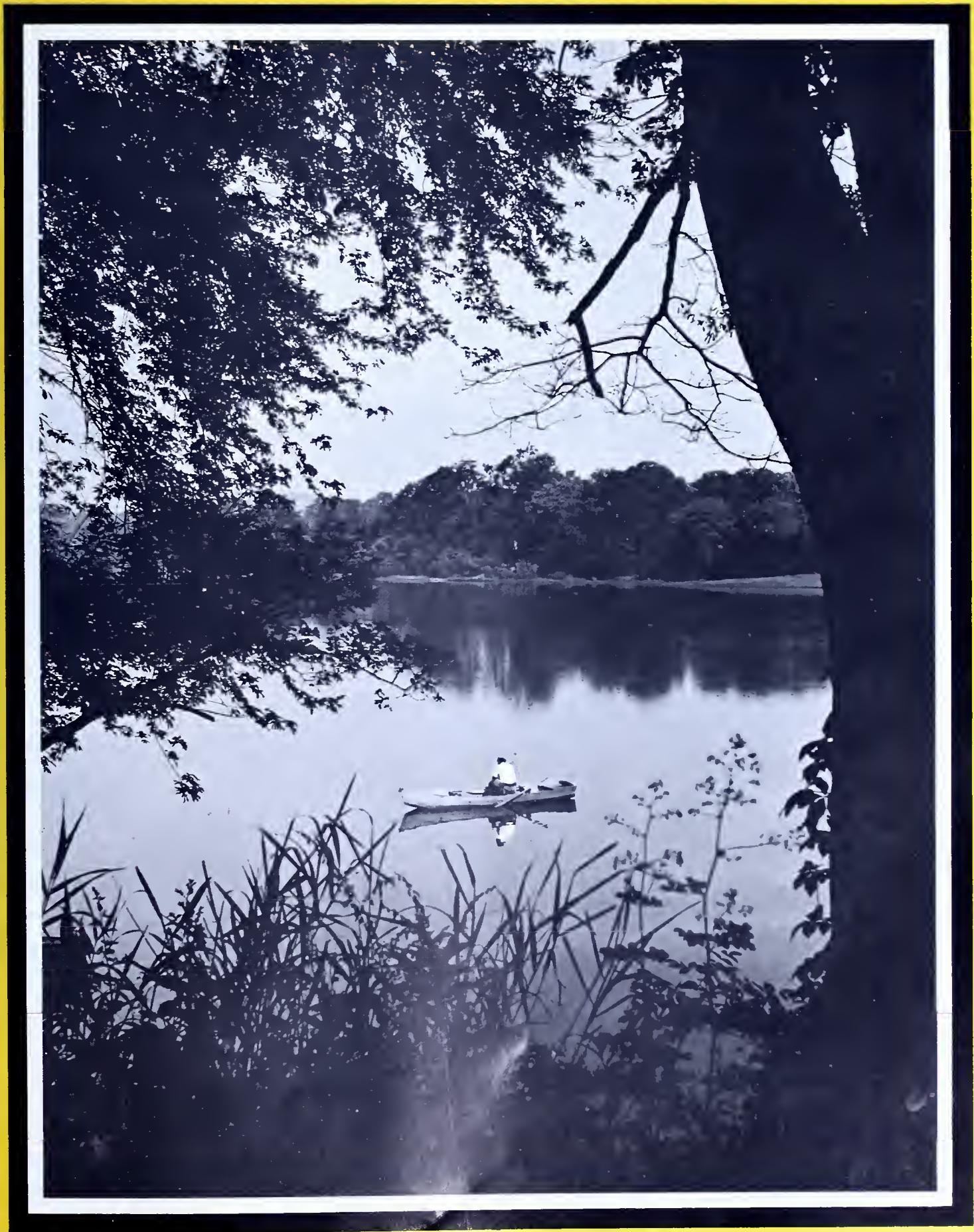
Swing Into Spring With . . .

- 1) One year subscription to the Pennsylvania Angler**
- 2) Copy of the popular, interesting PENNSYLVANIA FISHES**
- 3) County of your choice PENNSYLVANIA WATERS-HIGHWAY MAP**
- 4) Copy of the colorful PENNSYLVANIA REPTILES & AMPHIBIANS**
- 5) Pocket card for determining at a glance—the weight, age, of your catch**

\$2.26 for All Five-Clip Coupon on Page 24

P.30-31
1-6
C.1

Pennsylvania Angler



June 1962

PHOTO BY

PENNSYLVANIA STATE LIFE

Fast Reporting

Important In Pollution Control

By ALBERT M. DAY

Executive Director

Pollution of Commonwealth waters is one of the major problems faced daily by Pennsylvania Fish Commission personnel. With more than 45,000 miles of flowing streams in Pennsylvania, constant patrol of all these waters is both physically and economically impossible.

The assistance of the people in immediately reporting all cases of new pollution, either to a fish warden or a regional sanitary engineer of the Health Department, is of vital importance in the control of pollution.

The causes of fish kills may disappear within minutes, certainly within hours. Immediate reporting provides the state agencies, in most cases, with their only possible chance of tracking the source of a killing substance. When the source is found, the Sanitary Water Board will be able to take action to prevent similar kills in the future and the Fish Commission will take action to recover damages for the fish killed.

Fish wardens, Health Department sanitary engineers or citizens of the Commonwealth who have been trained in the proper method of taking water samples all can gather evidence needed to pinpoint the source of pollution. These water samples are necessary to establish Fish Commission claims for damages to fish and other aquatic life, and to provide the Sanitary Water Board with information needed to prevent future similar pollution.

Fish Commission field personnel have been provided with a standard procedure to be used in estimating fish kills by pollution. The use of a uniform method of computing the numbers and species of fish killed by pollution has become extremely important in the securing of voluntary contributions in settlement of fish kills. The steps taken by fish wardens in estimating the value of fish killed, in brief, are as follows:

If the kill occurs on a small stream or the polluted area is less than three miles in length, if possible, an accurate count of the dead fish is made. The numbers and sizes of the different species are listed. In larger streams, a uniform procedure has been developed for estimating the fish killed.

Data used in estimating larger kills includes upstream and downstream limits of the affected water, the distance between these points and the ultimate dimensions upon which the area of kill will be based.

A detailed inventory of all dead fish is made in sample areas throughout the length of the kill zone. The total number of each species, according to size groups, can be calculated and the final fish kill value worked out from the Fish Commission price list. This price list is based on average commercial values of fish in 1961. Typical examples of prices for fish are: trout, 7 to 9 inches—47 cents; trout over 18 inches are charged for at the rate of \$1.75 per pound. Bass from 6 to 8 inches are listed at \$1 each. Walleyes 10 to 15 inches are valued at \$1.50 each. The price list also includes pan fish, catfish, eels, suckers and minnows. No charge is made for carp or river quillback.

During the three-year period, 1959 to 1961, a total of 239 pollution cases was settled. There were 184 of these settled by voluntary contributions for a total of \$65,606.84, and 55 by prosecutions for a total of \$9,782.50. While a majority of the voluntary contributions were in the amount of \$100 each, some of them amounted to more than \$5,000.

The Department of Justice at present is handling a Fish Commission claim for \$58,504.50 in damages against the Glen Alden Mining Corporation for a fish kill in the North Branch of the Susquehanna River. Fish Commission and Health Department personnel have referred all data which they have gathered to the Attorney General, who is handling the case.

Every possible effort is made to avoid the stocking or restocking of streams where fish kills have occurred until such time as there is reasonable assurance that pollution kills will not again occur. However, with the more than 45,000 miles of streams, it is not possible for Commission personnel to check on the water conditions of each individual stream, particularly during the spring months when the heavy trout stocking program is carried out.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY _____ Chief

Fish Culture

HOWARD L. FOX _____ Superintendent

Real Estate and Engineering

CYRIL G. REGAN _____ Chief
EDWARD MILLER _____ Asst. Chief

Law Enforcement

WILLIAM W. BRITTON _____ Chief

Conservation Education-Public Relations

RUSSELL S. ORR _____ Chief



NORTHWEST REGION

S. CARLYLE SHELDON _____ Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES _____ Warden Supervisor
R. D. 2, Somerset, Pa. _____ Phone: 6913
DEWAYNE CAMPBELL _____ Fishery Manager
451 Cannell Dr., Somerset, Pa. _____ Phone: 5837

NORTHEAST REGION

H. CLAIR FLEEGER _____ Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724
TERRY RADER _____ Fishery Manager
R. D. 3, Honesdale, Pa. _____ Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN _____ Warden Supervisor
1130 Ruxton Rd., York, Pa. _____ Phone: 2-3474
ROBERT BIELO _____ Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK _____ Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162
DAN HEYL _____ Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN _____ Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES _____ Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

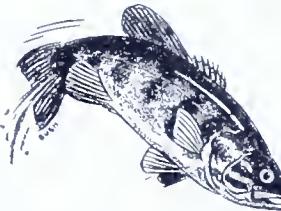
Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President	_____ Hawley
MAYNARD BOGART, Vice President	_____ Danville
JOSEPH M. CRITCHFIELD	_____ Confluence
WALLACE C. DEAN	_____ Meadville
JOHN W. GRENOBLE	_____ Carlisle
ALBERT R. HINKLE, JR.	_____ Clearfield
R. STANLEY SMITH	_____ Waynesburg
RAYMOND M. WILLIAMS	_____ East Bangor



JUNE, 1962

VOL. 31, NO. 6

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 SUSQUEHANNA FISHWAY SURVEY TEAM REPORTS—Russell S. Orr, Chief, Conservation-Education Division, Pennsylvania Fish Commission
- 4 BIG ONES IN RAINBOW ROW—Bill Walsh
- 6 DISTINGUISHING THE SUNFISHES OF PENNSYLVANIA—Keen Buss and Jack Miller, Fishery Biologists, Pennsylvania Fish Commission
- 10 BOATING IN PENNSYLVANIA
- 12 LARGEMOUTH BASS FRY ROUNDUP—A photo story by Johnny Nicklas, Chief Photographer, Pennsylvania Fish Commission
- 14 MUSKELLUNGE—NORTHERN PIKE—WALLEYE—PICKEREL SEASON AND WATERS IN PENNSYLVANIA
- 15 BIOLOGY BRIEFS—Daniel H. Heyl, Regional Fishery Manager, Pennsylvania Fish Commission
- 15 OUTDOOR BOOKS—“MAN AGAINST MUSKY”
- 16 COMMISSION OFFICIALS INSPECT LEHIGH STEELHEAD PROJECT
- 17 CLUB MEMOS
- 18 STREAM NOTES
- 19 OLD UGLY AND THE PERSNICKETY BASS—Chauncey K. Lively
- 20 THE FEMININE ANGLE—Marion Lively
- 21 SCHOOL'S OUT!
- 22 TACKLE TIPS—Don Shiner
- 23 SPINNING FOR BASS—Albert G. Shimmel
- 24 PICTURE OF THE MONTH

Cover Photograph by Don Shiner

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

Susquehanna Fishways

Survey Team Reports

By RUSSELL S. ORR, Chief

Conservation Education-Public Relations Division
Pennsylvania Fish Commission

The Pennsylvania Fish Commission received the initial report of the Susquehanna River fishway survey on May 9. Rough drawings of the proposed structures were received earlier in the week.

"We are very happy with these plans and the report, which, according to Milo C. Bell, consulting engineer on the project, 'at this time indicate that from structural and operational standpoints fishway systems are practical,'" said Albert M. Day, executive director of the Commission, in a statement to the press.

"While no cost data has been submitted on the proposals, we are very pleased that the study so far has cost the Commission only \$26,369 of the \$75,000 authorized by the Legislature for the project.

"This substantial saving was made possible because our consultants were able to use the extensive Federal fish study facilities at Bonneville Dam on the Columbia River. Experiments there were conducted during the shad run last spring and additional data will be assembled during the shad run which is on there now. The shad, which have done so well on the Pacific Coast, were originally transplanted some 60 years ago from the Atlantic Coast," said Day.

Harlan B. Holmes, consulting biologist of the survey team, planned to arrive in Pennsylvania in mid-May to make on-the-spot observations of the shad run in the Susquehanna and probably the Delaware River, according to Day.

The report, as written by Bell, follows:

MILO C. BELL
Consulting Engineer
Box 39
Mukilteo, Wash.

May 8, 1962

Mr. Albert M. Day
Executive Director
Pennsylvania Fish Commission
Harrisburg, Pa.
Dear Mr. Day:

As I discussed with you over the telephone, you are being sent by air express copies of the plans for fishways for the three major dams on the Susquehanna River. In the final form these drawings will be submitted substantially as they now appear in their work

form. You will note that the sheets are not all of uniform size and that they are un-titled and un-dated. The quantities and work items are shown and are now being re-checked; therefore, please treat these as preliminary, subject to modification and standardization of items based upon the re-check.

In order to insure that the structures will fit into the areas, a three-dimensional layout is being made for the three major dams; two of such drawings are included in the package of drawings. A final three-dimensional drawing for the right bank at Conowingo is almost completed and will supersede the drawing which has been sent to the Commission in our first submission. Some modification may be required at the upper ends and the entrances of all the fishways based upon this year's experimentation at Bonneville Dam, but this is a matter of cost rather than any added feature. The drawings sent are based upon adjustable weirs for both the headwater changes and the tail water changes.

The study of the velocity conditions concerning the movements of fish to the dam and through the pools is continuing. The considerations given to such items have not been overlooked but the most direct approach has been to determine the feasibility of physical structures at the dam in relation to their position and cost. In the final report, of course, all factors pertaining to fish movements will be considered.

At this time I have found no reason why fishway structures cannot be constructed as shown on the drawing or closely approximating their alignments. Therefore, from structural and operational standpoints, fishway systems are practical.

Fishway layouts for the York Haven Dam are now on the drafting board and will be completed shortly. The item of locks which was mentioned in the first review report is now being given structural consideration and will follow.

While submitting quantities, I am hesitant to submit prices until all of the schemes have been thoroughly checked in order that these comparative costs not be accentuated unduly until the biological and physical findings are fully integrated in the final report; however, the list of materials and work items will give some comparison between the schemes which have been studied.

Following is a list of features which have been considered in the preparation of the plans:

1. A review has been made of all the submitted drawings by the companies and a composite drawing prepared covering the essential features of the structures which will affect the fish facilities.

2. Hydrographs as related to gage height for each of the tail races and spillways have been prepared and submitted.

3. A field survey has been made of the rock structure at the abutments of each structure to insure that the structures proposed are feasible.

4. Cross sections have been prepared for the various forebays and for typical cross sections in the pools. The purpose of this is to determine the potential leading velocity gradients.

5. Consideration was given to the construction of barrier dams below two of the main structures. In this regard, it is obvious that at Safe Harbor Dam, a barrier dam in the spillway channel is not practical.

6. A review has been made of all available literature concerning the passage of shad, striped bass and Atlantic eel in fishway structures. In this regard, within only the last week we have received information from Ireland concerning their use of fish locks in passing elvers. Time has not permitted the reproduction of the drawings and analyzing the success of the structures there and on the continent by using locks.

7. At Conowingo Dam, layouts have been perfected for the tail race and for the spillway. This required four individual trials for the right bank fishway to determine the most practical alignment for this structure. Two layouts have been made for the spillway section in order to obtain the best alignment. At this point, while not completely abandoned for consideration, the barrier dam has not been fully perfected as it appears that the fishway would be the most direct approach and would require less discussion with the company in presenting an overall plan for fish passage.

8. At Holtwood Dam two layouts have been made for the tail race to obtain the most reasonable alignment associated with wheel discharge and the piercing of the non-overflow section at the power house or through the protective dam between the tail race and the spillway channel. Two layouts have been made for the right bank. Proposal two is the preferred scheme as proposal one would require the blocking of sufficient crest length as to raise the head water .58 feet at 250,000 cfs. Pro-

posal two would not cause any raise and would not require any gating to maintain the present pool raise at the various flow levels. A barrier dam has been considered for this spillway and, while not abandoned, has been set aside so that a common approach can be made to each of the dams.

9. At Safe Harbor the structural layout has been more straightforward as two fishways were considered to be the best approach for this dam. A layout has been perfected for the spillway and for the tail race.

10. At York Haven Dam work has been started only this week on developing a fishway system for the complex of spillway areas and power house relationships of the International Paper Company and the Edison Electric Company.

11. Auxiliary water will be required to operate the fishways at the three lower dams and the layouts contemplate the use of low head pumps to supply the water for any tail race facility. At all the spillway structures gravity water is being provided. The reason for this choice is that the loss of power would be at a minimum under this arrangement for conditions of regulated flow (all through the power house) and during the periods of spill when there is surplus water.

12. Beginning this week layouts are being made for a possible lock structure at Conowingo Dam.

13. The initial trapping and hauling facilities submitted on the first plans sent the Commission have been revised to include a means of separating desirable and undesirable species and a means of returning fish to the river. As the Commission was first advised, only one such structure will be designed for the reason that similar structures could be provided in connection with the fishway entrances at each or any of the three lower dams.

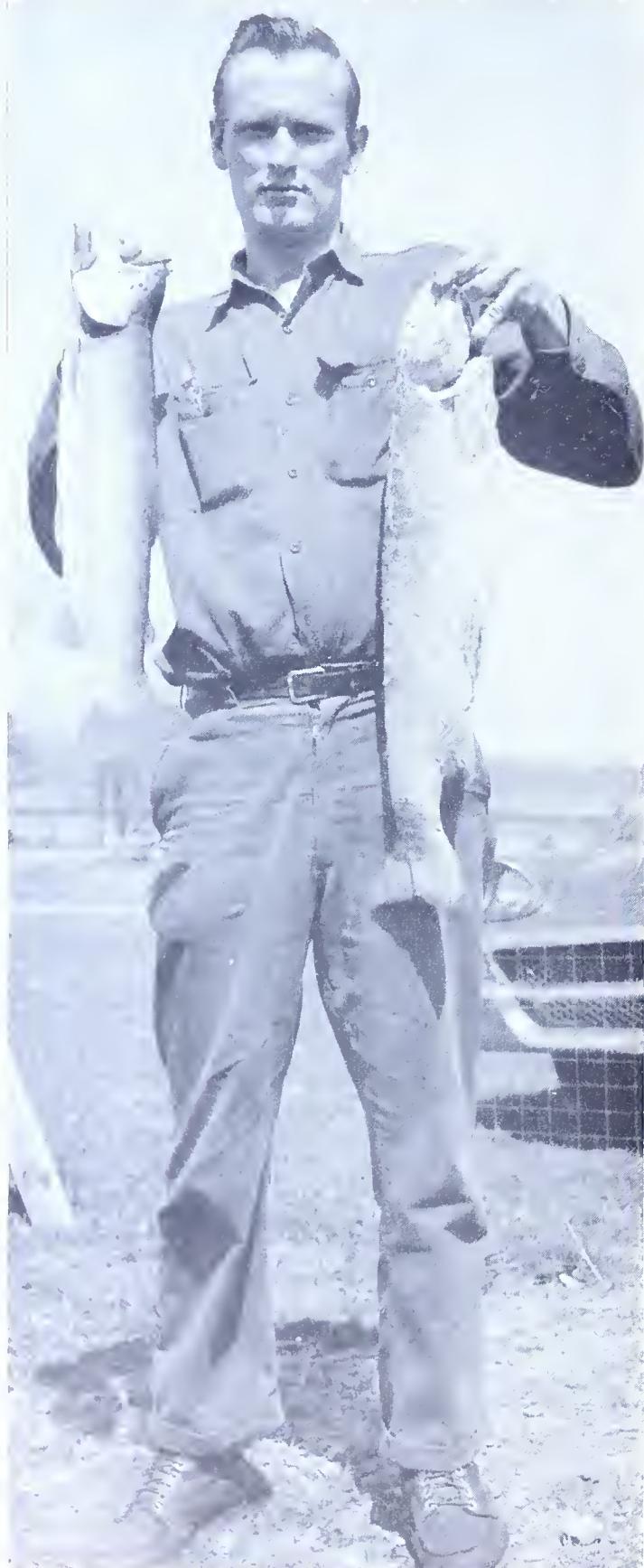
14. As previously reported a canal system has been laid out extending from Conowingo to Safe Harbor: the initial drawings as sent remain unchanged.

15. A tentative schedule of quantities have been prepared for the best alignment of structures found for the three lower dams. These require re-checking.

16. A study of the methods of the regulation of the spillways will have to be made in order that the companies would cooperate in the operation of the various gates to maintain the most attractive spill adjacent to the fishway entrances during the fish passage season.

Sincerely yours,
/s/Milo C. Bell





GEORGE KUHNS, Fairview, holds two lake-run rainbows. The larger fish, caught in Elk Creek, was 30 inches in length and weighed 12 pounds. The smaller, taken in Trout Run, weighed four pounds and was 24 inches in length.

BIG ONE

By **BILL WALSH**

In the Erie, Pa., Times-News

RAINBOW ROW—that's the name we give to that collection of streams that spill their waters out of northwestern Pennsylvania's chimney corner down into the rich depths of Lake Erie. The "rainbow" refers to trout, of course. For if there's a rainbow as long as your leg in your fishing dreams, your chance of hooking into a fish of that size is pretty good in that magic, spawning part of the year when smelt-fat rainbows bulk up the shallows into the fishing pools.

No one is certain how it all started—the appearance of rainbows from Lake Erie in these streams. Doubtless many a trout stream that empties into any of the Great Lakes has received trout stockings that included rainbows. Those in Erie County in years past usually got all brook trout but a rainbow or two could have slipped in.

At any rate, some dozen years ago, there they were—not in great numbers but enough of them to make folks take notice. Local fishing lore says that giant rainbow trout visited these streams long before that and that an occasional sucker fisherman would bag one with net or spear.

Research folks in the Pennsylvania Fish Commission began putting two and two together and have since come up with a big plus-four that is becoming increasingly important.

Like most research, it had some trial and error. The first stockings of hatchery-reared rainbows in these streams were principally fingerlings in large numbers. Hope was that a sufficient number would survive in the streams and go down into the lake as adults, answering the "travel" urge so common to the rainbow.

These attempts were not without some success but by 1957 researchers were dissatisfied with results. They reasoned that insufficient numbers of the fingerlings survived the normal hazards of the first year of life. They switched to a policy of stocking adult rainbow trout—better equipped to take care of themselves. Such fish measure 8 to 10 inches when planted. After a year or two in the lake, these fish are showing up in the streams

N RAINBOW ROW

Giant Lake-Run Trout Lurk in Area Creeks

of Rainbow Row as the kind of trout any angler would send away to the taxidermist.

The growth of these rainbows, once they turn tail out of the streams and run into the lake is nothing short of phenomenal. Lake Erie, the shallowest and the warmest of the Great Lakes, is also the richest from the standpoint of the nutrients of fish life.

One can only surmise that the adult rainbow grows sleek and fat on the vast hordes of smelt that populate the lakes as well as on other fish that get in the trout's way.

Several fish stocked in Erie County's Rainbow Row have been found below Niagara Falls. Others have been taken in Ohio streams—indicating migration both east and west or perhaps in some kind of pattern around the lake and back again.

Out of the realm of conjecture are the fishing records of several Erie County fishermen who have, through the application of patience and know-how, arrived at some successful fishing techniques.

One of the most persistent and successful of these is George Kuhns, of Bear Creek Road, Fairview, who kept a record between April 15 and May 8, 1961. This report, which speaks louder than many words, is kept by stream, date, number of fish, and length. Weights were not religiously recorded but generally a 23-inch fish begins to hit the scales at or near the five-pound mark.

The record shows 33 trout landed during that period. Except for opening day, there were no rainbows under 15 inches and the biggest measured a whopping 27½ inches. Thirteen trout exceeded 20 inches.

Fourteen of the fish were taken from Trout Run (seven on opening day), 12 from Walnut Creek, six from Elk Creek and one, a 26-inch monster, from Crooked Creek.

Another angler, John Oshlick, of 4141 Crestmont Avenue, Erie, Pa., kept a record of fish he caught in Trout Run in one week's fishing. He caught nine fish—one was 28"; two were 24"; two were 16"; one was 15"; two were 14" and one was 11".

All were lake-run rainbows. The 14-, 15-, and 16-inch fish were 8 to 10-inch fish stocked just the year before.

K. V. Keller, who kept a record of fishing activities from April 17 through April 22, 1960, ran up this record in Crooked and Walnut Creeks: eight trout 17 to 27¾ inches and 1¾ to 8½ pounds.

Some of the 'bows are bigger, too. Larry Drake, of Erie, took a 31-inch fish that weighed 11 pounds. It was caught on April 20, 1961, in Walnut Creek.

A shorter fish, taken by George Kuhns following his first report weighed 12 pounds. It measured 30 inches in length. Both the 11- and 12-pounder were known to be four-year-old fish.

Not all anglers keep records, of course. The complete catch from Rainbow Row in any one year will probably never be known. Nor will all anglers be patient enough to master the trickery of bringing big fish out of the pools.

Largely it's a matter of learning the pools likely to harbor the big ones and floating salmon eggs endlessly by until a lunker gets the urge to gulp 'em down. Then, of course, it's a matter of tackle and landing know-how because the springtime rainbow is a fighting fool that comes exploding out of the water in a manner that lets you know you're in for a recitation of your angling ABC's.

Some have been taken on the lowly night crawler, too. And the minnow; and the spinner; and the plug; and on and on. As in bass fishing, an angler usually catches the most fish on the kind of terminal tackle he's most familiar and expert with. That's up to each fisherman.

The streams in Rainbow Row are the Pennsylvania portions of Conneaut Creek, Raccoon Creek, Crooked Creek, Elk Creek, Walnut Creek, Trout Run, Twelve Mile Run, Orchard Beach Run and Twenty Mile Run.

It goes without saying they're attracting more local fishermen every year. Out-of-towners, too, are learning about them and it is common knowledge that an angler will travel hundreds of miles to catch a trout in the two-foot-or-longer category. The attraction of down-state and out-of-state fishermen to these waters would have the effect of lengthening Erie's tourist season and bringing new "tourist" trade into the city at a time when it's usually at low ebb.

Those are the streams and the fish of "Rainbow Row." The rest is up to you!

Distinguishing

The Sunfishes

of Pennsylvania

(Family—Centrarchidae)

By

KEEN BUSS and JACK MILLER

Fishery Biologists

Benner Spring Fish Research Station
Pennsylvania Fish Commission

THIS family is represented by the sunfishes, crappies and the black basses. They are spiny-ray fishes with a spinous anterior, and a soft-ray posterior, dorsal fin. These fish have deep, narrow bodies and usually a characteristic color pattern. However, due to hybridizing of the sunfishes there are many variations as to distinct structural and color patterns. For example, the bluegill and the pumpkinseed often cross and the resulting young are difficult to classify.

The sunfish group are nest-builders which reproduce in the spring or summer months. The saucer-shaped nests are tended by the male until the eggs hatch. After this the fry are usually shepherded by the adult until old enough to fend for themselves. The mortality among the young is high, but the tremendous reproductive capacities of these fish usually keep waters that are adapted for these species well stocked.

These fish are important to the anglers as pan fishes. Since they eat chiefly insects, crustaceans and other fishes, they take bait such as worms, flies and other artificials equally well according to prevalent conditions.

The sunfish family is native only to the North American continent. Sunfishes fall into three major groups, the true sunfishes (bluegill, green, redbreast, longear, pumpkinseed, bluespotted, warmouth and rock bass), the crappies (black crappie and white crappie) and the black basses (largemouth and smallmouth).

The rock bass (*Ambloplites rupestris*) is a robust fish. The color is dark olive with dark mottlings. The sides have a brassy reflection. It sometimes has a blotch on the gill flap which is tipped with white or gold. Maximum size is about 12 inches. The rock bass is distributed state-wide with the best populations usually in the larger bass rivers.

The green sunfish (*Lepomis cyanellus*) is a short stocky fish usually an olive-green color with a brassy

tint on the lower sides and belly. The maximum size is about 9 inches. This fish is distributed throughout the state.

The warmouth (*Chaenobryththus gulosus*) is brownish in appearance and superficially resembles the rock bass. The color varies from olive to gray with mottled markings on sides and back. The maximum size is about 11 inches. The warmouth is rare in Pennsylvania but is occasionally found in Lake Erie and the Allegheny River drainage.

The redbreast sunfish (*Lepomis auritus*), sometimes called yellowbelly sunfish, usually is yellow on the sides with the belly surface between the pectoral fins a dark yellow, or, in breeding season, a red color. The maximum size is about 12 inches. It is found only in the Atlantic drainage with the largest population usually in the bass rivers.

The pumpkinseed (*Lepomis gibbosus*) is one of the most common sunfishes in Pennsylvania. It closely resembles the bluegill. The body is light olive with a sprinkling of various colored spots on the sides. On the cheeks are wavy blue bars. Maximum length is about 10 inches and it is found state-wide.

The bluegill (*Lepomis macrochirus*) has a wide variety of colors. This coloration will vary from transparent pale yellow to a dark, metallic blue. Often 6 to 8 vertical bars are visible on the sides of this fish. Maximum length is about 12 inches and it is found state-wide.

The longear sunfish (*Lepomis megalotis*) is highly colored with a basic olive color tinted with orange spots. The maximum length is about 4 inches. This fish is rare in Pennsylvania and is found in the Lake Erie and Allegheny River drainage.

The bluespotted sunfish (*Enneacanthus gloriosus*) is a uniquely colored fish with the basic body coloration varying from light olive to almost black. The spots on

the body follow a definite lateral pattern and range from light yellow to dark blue. Maximum length is about 4 inches. This sunfish is found in the Atlantic drainage.

The white crappie (*Pomoxis annularis*) is a thin-bodied fish with sides of silvery olive grading to green or brown on the back. The maximum size is probably about 18 inches and it is distributed throughout the state.

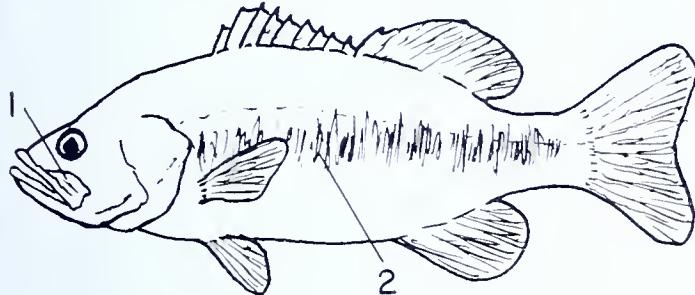
The black crappie (*Pomoxis nigromaculatus*) is similar to the white crappie in color, but the body is deeper in proportion to the length. Maximum size is

about 16 inches and it, too, has a state-wide distribution.

The smallmouth bass (*Micropterus dolomieu*) has a brownish cast to the body with vertical dark, olivaceous bars. Maximum length is about 24 inches. It is found state-wide and usually in large numbers in the major rivers.

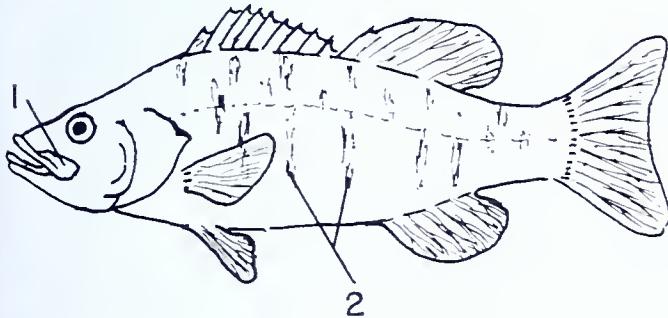
The largemouth bass (*Micropterus salmoides*) is a distinctive green colored fish with a dark lateral bar of black blotches. The body of the larger fish is usually more robust than the smallmouth. Maximum size is about 26 inches. It is found state-wide usually more predominately in lakes than in rivers.

The Black Basses:



Largemouth Bass—

1. Upper jaw extends beyond eye
2. Usually broad black stripe



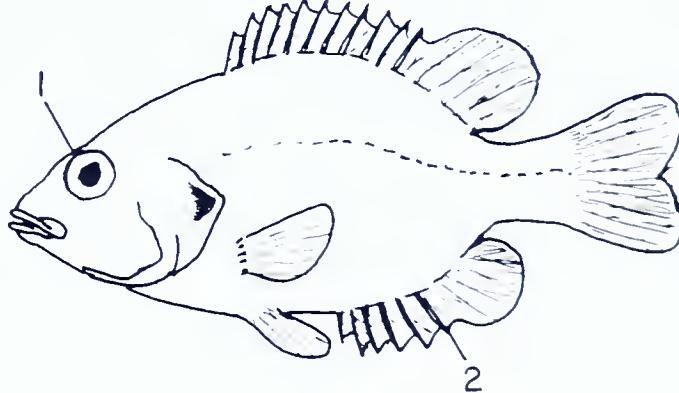
Smallmouth Bass—

1. Upper jaw does not extend beyond eye
2. Vertical bars on sides

Warmouth—

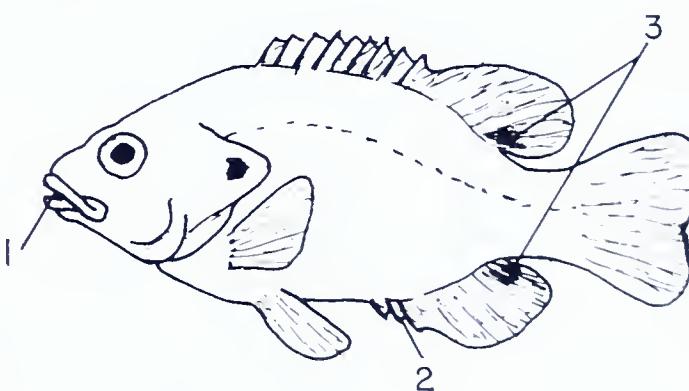
1. Eye reddish
2. Three spines on anal fin
3. Spots on dorsal and anal fins
4. Teeth on tongue

Mouth Beyond Front of Eye:



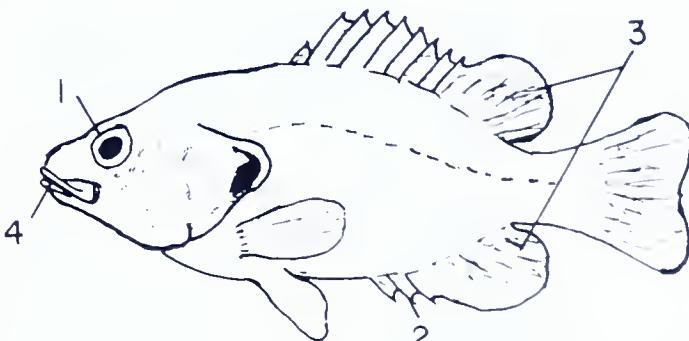
Rock Bass—

1. Red Eye
2. Six spines on anal fin



Green Sunfish—

1. Heavy lips and large mouth
2. Three spines on anal fin
3. Black blotch on dorsal and anal fins

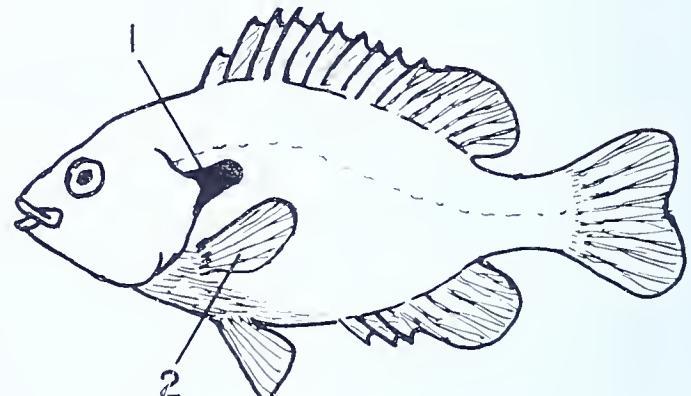


Distinguishing the Sunfishes of Pennsylvania

Mouth Not Beyond Front of Eye:

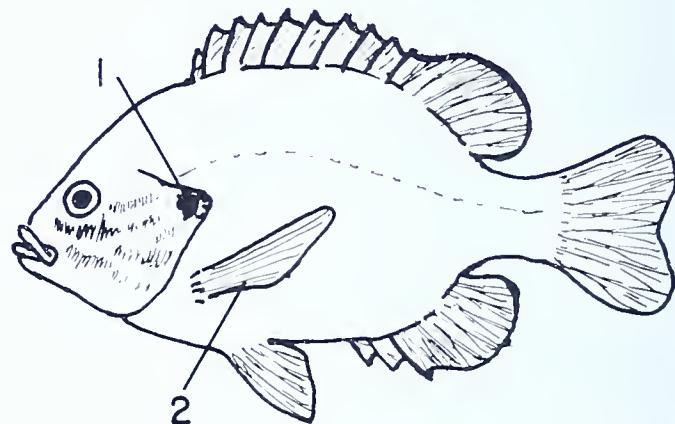
Redbreast Sunfish—

1. Gill flap black, long and narrower than eye—no red
2. Pectoral fin short and round



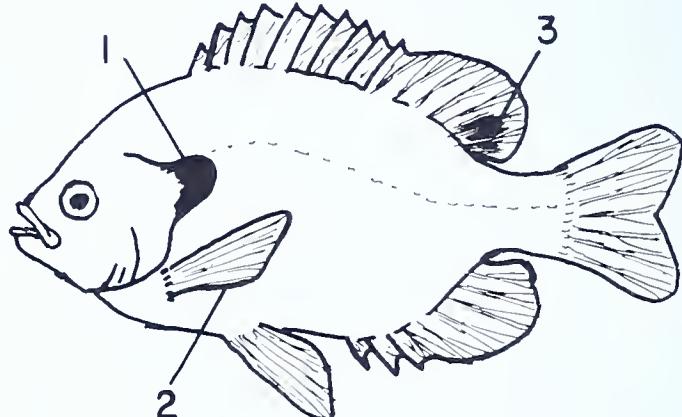
Pumpkinseed—

1. Gill flap black with bright red tip
2. Pectoral fin long and pointed

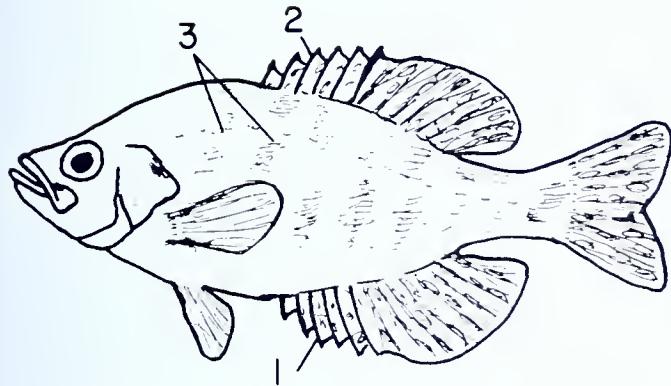


Bluegill—

1. Broad black gill flap—no red
2. Pectoral fin long and pointed
3. Black blotch on dorsal fin

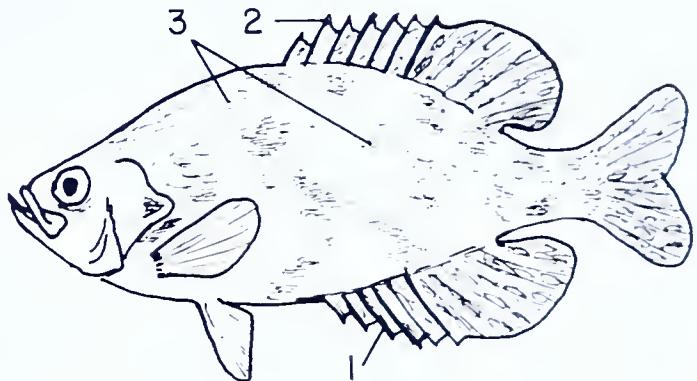


The Crappies:



White Crappie—

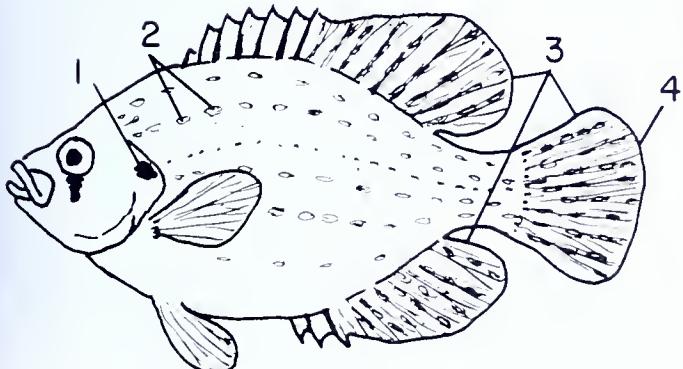
1. Six anal spines
2. Six dorsal spines
3. Spots usually in 7 or 9 bars



Black Crappie—

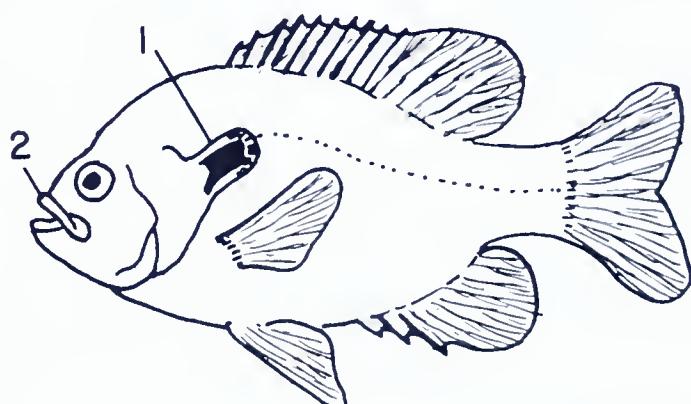
1. Six anal spines
2. Seven or eight dorsal spines
3. Spots scattered irregularly

Sunfish Which Seldom Exceed Four Inches in Length:



Bluespotted Sunfish—

1. Gill flap short, black spot
2. Light spots form lateral lines
3. Unpaired fins spotted
4. Tail rounded



Longear Sunfish—

1. Gill flap long and narrow, bordered with scarlet
2. Mouth moderately large, ending under eye

Boating

Start Making Your Plans Now For a Season of Boating Fun

As an occasional relaxation tonic, a lazy unplanned cruise down a meandering river is hard to beat. But as a steady diet, this type of unorganized boating often tends to become a bit routine. Most boatmen have found that their boating is more fun when they have some sort of plan in mind.

Like many other weekend skippers, you probably have several ideas for things you would like to do this summer. Perhaps you've already decided that this year for sure, you're going to take a few of those weekend cruises your boating friends continually talk about. For this kind of boating, planning is an absolute necessity.

"Cruising, whether all hands share the cabin and cockpit or spend the nights ashore in a tent, is one of the very best of whole-family activities," says the Evinrude Boating Foundation in its publication "Outboard Boating Skills." "It is interesting, instructive and restful; sometimes exciting, very rarely dull. One goes to new places, meets new people, picks up new ideas and acquires a broader, firsthand knowledge of our country."

But before setting out on a weekend cruise in strange waters, you will want to find the answers to several questions. You'll want to know such things as the best place to launch your boat, where to make convenient fuel stops, recommendations for overnight lodging and tips on good water-front eating places. You may be able to get this information from friends who have made the trip or you can consult booklets and maps published by state and local agencies. Most states have this information available and supply it through departments of conservation or boating. Perhaps your local marine dealer has the material or can tell you where to get it.

In addition to this information on services and accommodations, you may want to study a few navigation charts. Almost every large body of water has been charted. Charts and cruise guides can be obtained from several sources including some of the major oil companies. No doubt your local library has a catalog listing the sources of boating information for all parts of the country.

If you find the idea of frequent cruises appealing, consider the possibility of joining a boating club. Most of these clubs are very active and have something planned for every weekend during the boating season. They also have regular meetings and schedule various activities during the off season.

Planning can be almost as much fun as doing. And especially when it comes to cruising strange waterways, you'll find that planning is the key to an eventful and fun-filled trip.

PLANNING IS THE KEY to boating fun. This family makes final check of equipment in preparation for a weekend boating-camping trip. It's better to take a little extra time to double check before leaving home than to forget something highly necessary after you've arrived at destination.

Common Sense Boating Tips Every Boatman Should Know

A thorough soaking, loss of equipment or even worse can result when common sense boating precautions are overlooked. To help you avoid an unexpected swim, here are a few tips.

When boarding a small craft, step as far toward the center as possible and not on the gunwale or edge of the boat. If fishing gear or other equipment is to be loaded, it should first be placed on the edge of the pier where it can be easily reached after you have boarded the boat. When two or more people are present, it's best for one to board the boat and have the other pass the equipment to him.

Weight of passengers and equipment should be distributed evenly throughout the boat. This will keep the boat from listing to one side, plowing or squatting. A full fuel tank placed toward the bow will help stabilize a boat when only one person, sitting at the stern, is aboard.

If you must stand in a small boat, do so carefully. Feet should be spread and knees slightly bent to absorb a sudden roll or pitch of the boat. Above all, keep both feet solidly on the floorboards. Avoid having two or more people stand in a small boat at the same time.

Boat Buying Tips

Buying a boat is as simple as buying a car and should be approached in the same manner. As in buying a car, ask yourself two questions; for what use is it intended and how many people must it safely carry?

With these questions in mind, shop several marine dealers in your area to see what each has to offer. Price is certainly important, but don't sacrifice quality and features to save a few dollars. Boating rigs are usually purchased through time payment plans and most dealers will help you by making the arrangements for financing.

Apply Boat Numbers In Approved Manner

Enforcement officials have asked boat owners to follow a definite pattern of applying registration numbers to their boats in the future in order that the numbers are more legible.

Letters should be clearly separated from numbers. The correct method of applying the numbers would be with a spacing such as WC 1962 EM. Naturally, the color of the numbers should contrast with that of the boat hull, and the solid color of the number should be at least three inches in height.

When boarding a small boat, step to the center of the boat and not on the gunwale. You'll stay drier that way.

Beware of "bargain" life preservers. Unless they carry a Coast Guard approved label, you may be told to replace them before you even get on the water.



Start Season With Boat Shipshape

Whether your boat was stored inside or outdoors last winter, it will probably require a little elbow grease to make it shipshape in preparation for the fast approaching boating season. Depending upon the type of construction and material used, certain procedures should be followed. The boat manufacturer can best answer specific questions that will apply to most outboard boats.

With the boat tilted up and the drain plug removed, wash both the interior and exterior with warm water and a mild detergent. If the boat was kept in the water last season and was not cleaned before putting it into storage, it may take some doing to remove clinging growth from the hull. The blade of a putty knife, a wire brush and steel wool can be used effectively for this purpose. A clean smooth bottom is very important in getting the best performance from a boat.

Hardware should be checked for corrosion and pitting. A good polish will usually restore most of the lustre, but in some cases badly damaged hardware may have to be replaced. Especially if the boat is used in salt water, bright metal hardware and trim should be waxed or polished frequently throughout the season.

Equipment should be thoroughly inspected at the beginning of each season. Faulty life preservers may make good seat cushions but they won't be of much use if you suddenly need them to keep you afloat in an emergency. Life preservers and jackets do not last forever. Replace them as soon as they fail to do their intended job.

An anchor, if you can keep from losing it, should last a lifetime. Anchor lines, however, are a different story. They should be checked periodically for rot and fraying. You'll find your lines will last a lot longer if they are dried thoroughly before being put away.

Inspect the steering system for loose cables and pulleys. For maximum control, cables should be tight and free of excessive wear. A frayed cable will sometimes bind and make steering difficult.

Don't overlook the electrical system. Make sure running lights and other accessories are operating properly and the wiring is in good condition. If your boat is equipped with an automotive type battery, check for cracks and corrosion on the battery and cables. It's a good idea to start the season with a fully charged battery.

Your trailer will also require some preparation. Inspect the tires for wear and see that they are properly inflated. Pull the wheels and check the bearings. Water will sometimes get past the seals and cause the bearing to rust. Wheel bearings should be repacked at least once each year.

Be sure the rollers turn freely. A few drops of oil will help keep them free. Also check and lubricate the coupling mechanism. If the trailer is equipped with lights, a thin coating of waterproof grease will protect the sockets from corrosion.





LARGEMOUTH BASS FRY ROUNDUP

Photo Story by Johnny Nicklas

These scenes of a Pymatuning project conducted by personnel of the Linesville Hatchery, Pennsylvania Fish Commission, show how largemouth bass fry are rounded up. The young bass are brought from the lake, placed in tanks until a full truckload is acquired, then they are transferred to other hatcheries and held until they reach fingerling size, usually 2 to 3 inches. They are then removed and stocked in public waters.

- 1) Like Florida Seminoles, Commission employees work through dense aquatic growths of Pymatuning. Man in bow keeps sharp eye out for schools of bass.
- 2) Bass fry scurry for cover at approach of netters.
- 3) Bob Smith about to dig in for a try with the net.
- 4) The fry, as seen in an aquarium, compared with a penny for size.
- 5) Netted bass mixed with much vegetation.
- 6) Sea of lily pads hampers work but this is where the fry are.
- 7) Netted bass are placed in tubs.
- 8) Tubs full, boats meet tanker craft for trip to hatchery.
- 9) After unloading, netters go back for another tub load.
- 10) Tanker boat heaves to for another tub.
- 11) Tubs loaded in Commission trucks.
- 12) Tubs are unloaded into hatchery holding pools.
- 13) Fry find temporary quarters at hatchery until dispatched to other hatcheries.
- 14) Ardent bass fisherman Bob Smith displays a fine specimen caught at Franks Point, Pymatuning Lake.

Muskellunge—Northern Pike— Walleye—Pickerel Season Now Open in Pennsylvania Inland Waters

The fishing season for muskellunge, northern pike, walleye and pickerel opened on May 12 on inland waters of the Commonwealth. Fishing for these species will remain legal until midnight, March 14, 1963.

Size and creel limits governing the taking of these species in inland waters are as follows: muskellunge, 2 per day, minimum length—30 inches; northern pike, 6 per day, minimum length—20 inches; pickerel and walleye, 6 of each species per day, minimum length—15 inches.

The walleye is found in the large rivers, the Delaware, Juniata, Susquehanna and Allegheny. They are also present in many lakes, and excellent fishing for this species is found in large lakes and reservoirs such as Pymatuning, Conneaut and Wallenpaupack. Although fishing is best in the larger rivers and lakes, some small lakes provide walleye fishing.

If you're interested in fishing for northern pike in Pennsylvania, some good fishing can be enjoyed in Conneaut Lake, Conneaut Marsh and Canadohta Lake in Crawford County. In Mercer County, Otter Creek, Sandy Creek, Neshannock Creek and Sandy Lake provide pike fishing. Some northerns are caught in French Creek and the Allegheny River in Venango County. Presque Isle Bay on Lake Erie is another popular pike water. In addition to these waters, northerns were introduced in Crooked Creek Flood Control Reservoir in Armstrong County; Glade Run Lake, Butler County; Sugar Lake, Crawford County; Eaton Reservoir, Erie County; Somerset Lake, Somerset County; and the Youghiogheny Flood Control Reservoir.

The pickerel is one of the most popular game fishes of the northeastern portion of the Commonwealth, particularly in the Pocono region. An inhabitant of many of the lakes and streams which are tributaries of the Susquehanna and Delaware Rivers, this pike is not found in the western counties which lie in the Allegheny drainage.

The range of the muskellunge, which was originally confined to waters mostly in the northwestern region of the state, has been extended to include some 45 water areas in 32 counties, as a result of fish management work done by the Pennsylvania Fish Commission.

Legal size muskies—30 inches or more in length—have been taken from most areas where plantings have been made for four or more years.

The Commission's muskellunge stocking program was started on an experimental basis with the stocking of only 840 fingerlings in 1953. This has now been extended to the point where more than 20,000 fingerlings are being released each year.

Although we have not yet seen positive evidence that

Memo to Anglers— Summary of Inland Waters

Seasons, Sizes and Creel Limits

BASS, largemouth and smallmouth—June 16—opening day.

Minimum length—9 inches. Number allowed for one day—6 (combined species).

WALLEYE AND PICKEREL—opened May 12.

Minimum length—15 inches. Number allowed for one day—6 (each species).

MUSKELLUNGE—opened May 12.

Minimum length—30 inches. Number allowed for one day—2.

PIKE, Northern—opened May 12.

Minimum length—20 inches. Number allowed for one day—6.

SUNFISH, all species—open year around. No minimum size.

YELLOW PERCH

CRAPPIES, ROCK BASS

CATFISH, SUCKERS

Number allowed for one day—50 of each or 50 combined.

BAIT FISH AND FISH BAIT—open year around. No minimum size.

Number allowed for one day—35 each, 50 combined.

the muskellunge are reproducing in their new locations, because of the excellent growth being shown, we have good reason to hope natural reproduction will take place.

The Commission's muskellunge program is described in a booklet, "Pennsylvania's Muskellunge Program." Author of the booklet is Keen Buss, fishery biologist of the Commission's Benner Spring Fish Research Station. The booklet is free upon request to the Conservation Education Division, Pennsylvania Fish Commission, Harrisburg.

The water areas in the state where muskellunge now are to be found are as follows:

NORTHWEST REGION: Presque Isle Bay, Conneaut Creek, Edinboro Lake, Lake LeBoeuf, LeBoeuf Creek and Union City Reservoir in Erie County; Cussewago Creek and Conneautee Creek in Erie and Crawford Counties; French Creek in Erie, Crawford and Venango Counties; Drakes Mill Dam, Canadohta Lake, Conneaut Lake, Pymatuning Reservoir and Sugar Lake in Crawford County; Shenango River in Mercer and Lawrence Counties; Sandy Lake in Mercer County; Big Neshannock Creek in Lawrence County; Allegheny River in Venango, Forest and Warren Counties; Tionesta Reservoir and Tionesta Creek in Forest County; Brokenstraw Creek and Connewango Creek in Warren County; and Connoquenessing Creek in Butler County.

NORTHCENTRAL REGION: Hills Creek Dam

in Tioga County; Bald Eagle Creek in Clinton and Centre Counties; Black Moshannon Dam in Centre County; and Middle Creek Dam in Snyder County.

NORTHEAST REGION: North Branch of the Susquehanna River in Bradford and Wyoming Counties; Lake Jean in Luzerne County; Gouldsboro Lake in Wayne and Monroe Counties; and Lower Promised Land Lake in Pike County.

SOUTHWEST REGION: Allegheny River in Clarion and Armstrong Counties; Dutch Fork Lake and Canonsburg Lake in Washington County; South Fork, Ten Mile Creek in Greene County; and Somerset Lake in Somerset County.

SOUTHCENTRAL REGION: Raystown Dam in Huntingdon County; Shawnee State Park Lake and Gordon Lake in Bedford County; and Opossum Lake in Cumberland County.

SOUTHEAST REGION: Safe Harbor Dam in Lancaster County; York Haven Dam and Governor Pinchot State Park Lake in York County; Brandywine Creek in Chester County; Green Lane Reservoir in Montgomery County; and Unami Creek in Bucks County.

OUTDOOR BOOKS...

"MAN AGAINST MUSKY," by Howard Levy (The Stackpole Company, Harrisburg, Pa.).

Now here is a gentleman who writes softly but carries a big baseball bat! Certainly this is not the only equipment Mr. Levy uses to catch big muskellunge he so simply describes in his new book. He declares . . . "if you're not a trout fisherman, in fact, if you're not a fisherman at all, I caution you . . . DANGER AHEAD, PROCEED AT YOUR OWN RISK! Keep your eyes ahead, never look to right or left, if you stop long enough to look around, get some ideas . . . you're a lost soul!"

The author begins by admitting he has been infected by a rare germ defying all antibiotics . . . that he is a musky fisherman, and has been since 1931. How he got started on the musky kick and the long road to musky success may be just the avenue for an angler's short-cut to "musky madness."

Mr. Levy keeps a sort of diary but he writes not by items but by rounds. As an example, in part: "Round No. 2: Saturday, July 8, 1944. Cloudy, threatening. This incident which covered an afternoon's casting by Joan, Lawrence Ruttan and me, . . . resulted in 5 'lunge boated and one large fish lost, all the action occurring within the hours of 3 and 4 p.m. . . ."

The baseball bat previously referred to is used by the author to tap a musky gently on the noggin after he's boated and again it is a minor piece of equipment, considering the straightforward account of the tackle used. With the stepped-up muskellunge program in Pennsylvania, I think this book is just what was needed all along. As the author goes on to say . . . "the muskellunge fisherman is an unique misfit in this great army of sports fans, for his Christmas morning may never come, or at the very best, might come only after long years of waiting." Recalling the words written by an editor of a sports magazine . . . "if you catch a musky, of any size, you are a very lucky person. If you catch a muskellunge of 20 pounds or over, you can consider yourself most fortunate. But, Brother, if you ever land a musky 30 pounds or over, you belong to one of the most exclusive fraternities in the sports world!"

BIOLOGY BRIEFS

Have You Slipped on Any Diatoms Lately?

By **DANIEL H. HEYL**

Regional Fishery Manager

Pennsylvania Fish Commission

OUR wonderful sport of fishing is not without its hazards. Among other things, we occasionally have to contend with bad roads, rattlesnakes and slippery rocks. The latter is the subject of this discussion.

Do you ever wonder, after a day's fishing, slipping and sliding from one place to another, just what made those miserable rocks that way. Well, certain biologists have studied this phenomenon and have come up with some interesting findings.

Public Enemy Number One among the "slippery rock cankers" are the diatoms. Diatoms are the tiny single-celled algae (a primitive plant form) mostly invisible to the naked eye. They are commonly found attached to rocks and other bottom material in the streams throughout the state. These tiny plants, which sometimes encrust the rocks of a stream in great numbers, make the surface of the rocks slippery.

While they often make walking in streams difficult, they are a very important source of food to many aquatic insects. Mayflies and stoneflies, which are important trout foods, depend a great deal on diatoms for food. By simple deduction, then we can see that if diatoms are scarce, trout food may also be scarce and the resulting permanent trout population will be fewer in number and smaller in size. Generally speaking, streams which have the most fertile waters, the most stable flows and bottoms have the greatest number of diatoms.

Diatoms are sensitive to pollution, particularly acid mine drainage and industrial pollution. In streams receiving pollution the diatom population is invariably changed. A slight pollution will remove the least tolerant species to pollution first. Increased pollution will eliminate more and more species until finally in the case of severe pollution virtually all of the diatoms will have been destroyed. You seldom slip in a stream polluted with acid mine drainage.



Commission Officials Inspect Lehigh Steelhead Project

—Photo Courtesy Allentown Morning Call

The prospects of establishing annual runs of steelhead trout in the Lehigh River and its major cold-water tributaries as well as the beauties of Allentown's parkway system were the main conversational pieces during a recent tour of state and local conservation people. The tour moved along the Little Lehigh, Cedar Creek and Jordan Park areas.

Heading the inspection trip, made in a chartered bus, were Albert M. Day, executive director of the Pennsylvania Fish Commission; Ray Williams, of East Bangor, area fish commissioner; and Norman Sickles, of Emmaus, district fish warden.

Representatives from the local conservation groups were: Mark Passaro, Morton V. V. White, Calvin J. Kern, Ben Roth, R. P. Stimmel, Mike Fedorak, Jimmy Biery, Ray Moyer, and Charlie Heimbach. Officially on hand for the City Parks Department were: Dr. Samuel Fenstermacher, city councilman; and Joseph Gackenbach, superintendent of parks.

Asked whether steelhead trout have a possibility of establishing themselves here on the east coast, Day said that it was a 50-50 chance. At the present time there are about 8,000 steelhead trout being raised at the local hatchery for liberation in the Lehigh River and its major cold water tributaries.

The eggs, through the Fish Commission and Washington State Department of Game were obtained from spring run fish last year. They were flown east and hatched at the Fish Commission's plant at Pleasant Mount in Wayne County. The young fish were then transferred to the local hatchery last October.

At present time the young steelheads are from three to five inches in length. The fish, when released, should be about 8-10 inches. They are expected to make their way down the Big Lehigh, into the Delaware River and then—if they can survive pollution blocks—into the Atlantic Ocean.

If successful, these fish would return in about four years to their place of stocking. Steelheads of a four-year run average from eight to twelve pounds.

Another batch of steelhead eggs is now being hatched by the Fish Commission at Pleasant Mount Hatchery. These, and others, are to be transferred to the local hatchery, this fall. While the Fish Commission provides the hatching facilities and keeps the young fish for several months, the major cost of care and feeding is borne by the Lehigh County Fish and Game Protective Association.

Five-Year Program

The stocking program is being continued for a period of five years to see whether or not steelhead trout will take hold in eastern waters. The fact that Atlantic shad and striped bass have taken hold in the Pacific waters when transplanted from the east ocean may prove re-



ALBERT M. DAY, executive director, Pennsylvania Fish Commission, inspects trout netted from the cold spring run at the former Trexler trout farm. Watching are Morton V. V. White, director, Lehigh County Federation of Sportsmen's Clubs; Don Jacobs (holding net); and Mark F. Passaro, president of the Lehigh County Fish and Game Protective Association.

ciprocal when the steelheads from western waters are planted here in the east, concluded Day.

Also carefully watching the local experiment is Fish Commission member Ray Williams, of East Bangor. It was through Williams' insistence that the local experiment was finally approved by other members of the Commission.—Charles Neff in the *Morning Call*, Allentown.

Fish, Wildlife People May Have Voice in New Road Lanes

Streams would be reserved for fish and fishing if Congress adopts companion proposals now pending before the Senate and House Public Works Committees, which would require the Secretary of the Interior's approval of "all surveys, plans, specifications, and estimates" for the federal-aid highways systems, the Wildlife Management Institute reports. The bills, S. 2767 by Senator Lee Metcalf (Mont.) and H.R. 10269 and H.R. 10453 by Congressmen Henry S. Reuss (Wis.) and Arnold Olsen (Mont.), seek to give fish and wildlife interests a voice in selecting routes for highways constructed with federal financial assistance.

State fish and game departments seldom can convince highway planners that new roads should avoid stream beds, that gravel should not be dredged from streams for construction purposes.

CLUB MEMOS

New officers chosen by the **Wissahickon Valley Watershed Association** recently were: Ernest G. Enck, president; Robert McLean, vice president; Philip H. Ward, III, secretary; and Thomas Dolan, IV, treasurer. The association's Second Annual Conservation Award this year went to Arthur F. Loeben, Montgomery County Planning Director.

The PENNSYLVANIA ANGLER staff joins the **Pennsylvania State Fish and Game Protective Association** in mourning the loss of loyal member and conservationist, Jack Magruder. Although in failing health he was on duty at the March Sportsmen's Show in Philadelphia and managed to attend the 80th Anniversary Banquet of the club. He will be missed in all state conservation circles.

In the Sportscaster, monthly bulletin published by the **Perkiomen Valley Sportsmen's Association**, J. Edward Houtz, Editor, included the following sketch: For many years we had fished with this guy, one of the greatest all-around fishermen this nation ever has had. In his 60-odd years of fishing he caught tons of fish on artificial lures.

We should have suspected something by the way he chose ties which clashed discordantly with his attire, but we didn't. But one day we discovered he was totally color blind . . . couldn't tell red from gray.

So we said, "Hey, wait a minute. Why do you take all that time to paw over and study your lures before tying one on, to fool a fish, if you're color blind?"

His answer, "Oh, I'm not choosing a color, I'm picking a lure with the most teeth marks!"

Think on this one a bit, we have many times since! Fishermen can conjure up very odd approaches.

Mark Passaro, president of **Lehigh County Fish and Game Protective Assn.**, has appointed a new committee for studying and advising on special club projects under chairmanship of R. P. Stimmel. Other members are: Charles Nehf, Mort White, Larry Knoblauch, Charles "Jack" Houser, Robert Plarr, Al Bortz, Joseph Gackenbach, Boyd Walker, Bob Wessner, William Reimert and Zeke Witwer. Also appointed was a new club librarian. Mrs. Thomas Beidler was named to keep a permanent record of all club activities.

The York County Federation of Sportsmen's Clubs held their annual banquet on April 10 at Emigsville with more than 250 persons in attendance. Eddie Schneider and Gil David were in charge of the affair. Pennsylvania Fish Commission Regional Warden Supervisor John Ogden, District Warden Paul Martin and PENNSYLVANIA ANGLER editor, George Forrest, attended.

Fred C. Dutt has been appointed secretary-treasurer of the West Chester Fish and Game Association. He replaces J. Clyde McMullen who has been acting secretary but left his post because of pressure of other duties.

According to reports memberships of the **Lehigh County Fish and Game Protective Association** continued to climb ahead of last year's figures. President Mark Passaro was pleased with the club's progress the past year. A young lady turned up for the fly tying classes sponsored by the club and Instructor Joe Samusevich reports she is doing very well. The course is offered to both boys and girls at no fee but each student buys his own equipment and materials.

Junior Conservation Camp Enrollment Near

High school boys from all sections of Pennsylvania will be enrolled again this summer at the Junior Conservation Camp to be held at Stone Valley, near University Park.

The camp, which was first held in 1948, is sponsored by the Pennsylvania Federation of Sportsmen's Clubs, an affiliate of the National Wildlife Federation, in co-operation with the Pennsylvania State University.

Charles W. Stoddart, Jr., director of continuing education for the College of Physical Education and Athletics at the University, continues to serve as director for the camp.

He explains that the camp is open to boys who are freshmen or sophomores in high school during the current academic year and who have not previously attended the camp.

The Divisions of the Federation have been assigned quotas for the following dates: Southwest and South Central, July 1 to 14; Northwest and North Central, July 15 to 28; Southern and Northeast, July 29 to August 11; and Central and Southeast, August 12 to 25.

While the majority of boys who will attend will be sent by the Divisions of the Federation, there are vacancies for other boys who may be sponsored by women's clubs, garden clubs, and other conservation agencies.

The purposes of the program are to enable boys to learn the conservation or wise use of our natural resources—soil, forests, water, minerals, and wildlife; to profit from a rich camping experience while studying conservation education; to prepare for citizenship and service in home communities; to learn to live, work, and play together; to develop interests in outdoor hobbies and activities; and to prepare young leaders in the conservation education of the various communities of the state.

It is hoped that boys attending the camp will become leaders in conservation activities in their home areas.

The program includes lectures and field trips which deal with such phases of conservation education as wild plant and animal food, stream pollution and purification of water, reforestation, tree planting, forest management, stream improvement and fish hatchery problems, soil and land capabilities, farm planning, farm fish ponds, farm and forest game and habitat, mineral resources of Pennsylvania, reclamation of lands, erosion, and meteorology.

In addition, firearms safety, firing on the range, fly and bait casting, archery, and fly tying are taught.

The **Chambersburg Rod and Gun Club and Radio Station WCBG** are again sponsoring the annual children's trout fishing rodeo on June 23 at Fort McCord, in Dennis Creek, Franklin County. All children are welcome to attend according to Maynard Burkett, chairman of the Rodeo Committee of the club.

Nothing begins big. Great things grow out of small things.

STREAM NOTES

At 1 p.m. on April 20 I assisted in stocking trout at North Park Lake. While patrolling the lake at 5 p.m. the same day I saw Lou Devick, Verona angler, land a 16-inch rainbow. I noticed this fish had a distended stomach and when it was cut open it contained 42 salmon eggs of assorted colors, 3 night crawlers, 1 minnow and 1 red worm. Now here was a fish that really put on the feed bag, averaging one bait every 6 minutes.—**District Warden Stanley Paulakovich** (Allegheny).

#

District Warden Kenneth Aley (Potter) found from 2 to 8 inches of snow over his area opening day of trout season. One angler suggested ditching the rods for skiing or something. On the night of April 27, last, Richard Burrous, of Galeton, caught a 23-inch eel out of Pine Creek near Ansonia, Pa. This is the first eel taken in this area in years. How the eel got into the creek is a good question.

#

While on patrol along the shoreline at Pymatuning Lake, I checked a Joseph Gelormini, of Pittsburgh, Pa. He had been trying at the lake for muskies for five years, never a bit of luck. On April 27, 1962, he hooked a musky using a large chub for bait. He landed the fish, continued fishing. He had another hit and was doing very well until he got the fish close to shore but lost it. Here was five years of effort and no hits when all of a sudden, two hits, one fish landed; it was tagged by the Fish Commission, according to Hatchery Superintendent Sheryl Hood, in April, 1958.—**District Warden Raymond Hoover** (Crawford).

#

Steve Wasko, of Butler, Pa., after trying for 35 years for a big trout finally nailed a 6½-lb., 24¼-inch brown trout in Bear Creek. Wasko told **District Warden Clifton E. Iman** (Butler and Beaver) the trout had 4 hooks in its mouth when he landed it. Looks like a guy should just keep on trying.

#

Donald Motter and Carl Rodgers, of Oil City, Pa., were fishing together but on opposite banks of Lower Two-Mile Run, Venango County, on opening day of trout season. They were both using salmon eggs and each had a strike at the same instant. Each hooked a trout . . . the same trout! An 8-inch rainbow had taken the baits of both fishermen.—**District Warden Clarence W. Shearer** (Venango).

#

During the week of April 23rd the shad made an initial appearance in the tidal areas of the Delaware River, on their way upstream to spawn. One of the shad experts along the river is Barney Borden, of Yardley, Pa., who declares the catching is best when the dogwood blossoms open along the Bucks County banks of the river. Edward Balderston, of the Federation of Sportsmen's Clubs, claims Morrisville top section to be the best for catching shad.—**District Warden Miles D. Witt** (Northampton, Bucks).

#

District Warden Joseph Bartley (Pike) believes the Juneberry tree was rightly renamed when someone tagged it with "Shad Bush." We have been keeping close watch on the shad run this year and the "Shad Bush" came in bloom on April 28. I saw the first shad caught on April 28 at Lackawaxen. The shad run looks very fine this season and they must certainly be itching to be caught. While fishing with Game Protector Kriefski and Trooper Edwin Pearce at Milford, Kriefski had a shad up to the boat but when Trooper Pearce tried to net it, it dove, missed the net. Yet, when the net was brought up it contained another shad!



FISH WARDEN HONORED. Charles Litwhiler, veteran District Fish Warden of the Pennsylvania Fish Commission, was honored recently by the Keystone Fish and Game Association at a testimonial dinner held at Shamokin. Presenting a gift to Litwhiler are Ralph Klinger, left, and Elery Newbury, president and secretary, respectively, of the sportsmen's club. The 400 persons attending heard an address by Warren W. Singer, assistant to the executive director of the Fish Commission. The Hon. Maynard Bogart, vice president of the Commission, and H. Clair Fleeger, Northeast Regional Warden Supervisor, were guests at the dinner.

While checking a trout fisherman and his son recently he told me the following story. As he was driving along the stream he noticed a blue jay in the middle of the road attempting to fly but obviously in distress. He stopped, caught the jay and discovered it had swallowed a fish hook with a worm on it and the leader attached to the hook had wrapped around one of its wings, binding it so flight was impossible. He cut the hook from the leader, untangled the jay bird and released it. **LOSE A HOOK . . . SPARE A BIRD!**—**District Warden Willard G. Persun** (Bradford).

#

The operator of a diner told me he overheard two trout fishermen discussing their action and one said he had caught a fairly nice trout that day. But when he dressed it out the flesh of the fish was all pink inside and figuring it had some disease or another, threw it away. The diner owner asked me just what was the trouble with that trout. I stated that these are the kind I like to catch!—**District Warden Willard G. Persun** (Bradford).

#

Francis Kemp, outdoor writer of the Huntingdon Daily News, has been doing good trout business on Standing Stone Creek according to **District Warden Richard Owens** (Huntingdon-Mifflin). Don Shoemaker, of Lewistown, took two brown trout from Musser Run at McVeytown, 23 and 18 inches.

#

Southcentral Regional Warden Supervisor Harold Corbin tells of an angler he saw wading the stream in leisurely fashion, hoping for a strike but little concerned. He had a small transistor radio strapped to his person listening to a baseball game as he moved down the creek. It's hard to tell just what would have happened if he would have hit into a big trout while somebody hit a home run on the radio!

District Warden Kenneth G. Corey (Warren) says there is no end to a warden's duties. The opening of trout season in his areas was greeted by a covering of 3-4 inches of snow. Anglers were standing around fires like deer hunters on a cold day. There were the usual wet feet but one man asked me to pull off his boots, then help him into his car, then start the motor, then the heater. Then, as I was driving along the stream I was hailed by a lady fisherman who asked me to unlock her car door because her hands were so cold she couldn't get the key in the lock!

#

Charles F. Dietz, of York, Pa., revealed to **District Warden Paul Martin, Jr.** (York-E. Adams), his economical method of transporting live bait in warm weather. He uses a small rubber tube leading from his bait bucket in the rear seat of his car. While driving along he occasionally blows through this tube and guarantees the bait will be alive and peppy when you arrive at your favorite fishing hole.

#

I talked to a lot of people fishing around Conneaut Lake recently who told me it was the first time they had fished in years. They read so much about fishing in the newspapers they decided to buy a license and again get in the game. With pan fish really putting on a good show, nobody was disappointed. I observed more nonresident licensed anglers this season than ever before. Conneaut Creek, only 14 miles from the Ohio line, had 32 Ohio cars parked along a five-mile stretch on the second day of the season.—**Regional Warden Supervisor S. Carlyle Sheldon.**

#

Most people, says **District Warden Paul Martin, Jr.**, when apprehended violating a fish law always have a reason. While patrolling the Susquehanna by boat with Special Fish Warden Marshall recently, we were handed these two explanations on the same day: One man apprehended with two smallmouth bass in his fish bag explained . . . "I am going to return them and kept them only because I caught them twice and wanted to keep them from bothering my lines." Another angler found fishing without a license figures . . . "I don't need a license to fish here because I'm in tidewater." His son and daughter-in-law with him, both had licenses.

#

Bernard Zukus, state trooper stationed in Bedford County, told **District Warden William E. McInay** (Bedford) that while he was cleaning a brown trout he found a filter from a cigarette in the stomach of the fish. Even the fish are becoming "filter-conscious" in their smoking habits these days.

#

I was seated at the Fish Commission display at the sports show in Bellevue April 10, when two small boys, about 7 years old, stood in front of the adjoining Game Commission display of mounted hawks and other Pennsylvania birds including the ruffed grouse, wood duck. They gazed in awe at the wonders of nature. After minutes of silence one small boy turned to me and asked . . . "Hey, Mister, is them pigeons alive?"—**District Warden Stanley Paulakovich** (Allegheny).

A body of water is like a farm. The water and the plant life in it are the pasture, the animal plankton, the cows and fish are the predators. To manage a farm on land, it is necessary to control the factors in production to attain good yields. This is relatively simple because one person owns the land and will usually do what is necessary. On public waters the picture is different. Instead of one owner, there are thousands, each participating in the cropping.—*Wisconsin Conservation*

Old Ugly and the Persnickety Bass

By CHAUNCY K. LIVELY

SEVERAL years ago I was bugging the shoreline of a small lake and hooked a good bass back in the reeds along a shallow bay. As I unhooked the bass two freshly caught dragonfly nymphs fell from his yawning maw. The bass was released but one of the nymphs was put in a small bottle and brought home to pose as a model at the fly tying vise as I tried to make an imitation of him.

Two attempts were made with different combinations of materials before I had what I felt was a reasonable imitation of the natural. But as I looked at the pop-eyes and bulging abdomen of the new fly I could think of no name more appropriate for him than Old Ugly.

Then I got to thinking about nymphs and bass and about how successful some of the bait boys were with hellgrammies on the Allegheny, so I decided to try to tie an imitation of this biggest of all aquatic nymphs, the Dobsonfly larva.

The first attempt at tying the hellgrammite was a lucky one and it looked just right. Or as right as a hellgrammite is supposed to look, which isn't very. From a purely aesthetic standpoint he didn't even look as good as Old Ugly. So naturally he was christened Old Double Ugly.

Well, the Old Ugly brothers rode around with me for quite a while before they were used. In fact, they were all but forgotten until the following summer when our family spent a week at a Crawford County lake in sweltering weather.

Bass bugging was good as long as you were out on the lake from before daybreak until 9:00 and again from early evening until after midnight. Naturally we took advantage of these two daily (and nightly) sessions but there was a void of about ten hours during the day when the bass were down. And as long as there are good bass in the lake who wants to settle for less than an eighteen-hour fishing day? Fishing is relaxation and we're there to relax, aren't we?

Anyway, it wasn't until the third day that I got smart enough to remember Old Ugly in my kit and we set out at high noon to give him his baptism. Well, the results were sometimes more than gratifying. All we had to do was find a good pocket in the pike weeds, let Old Ugly settle to the bottom, start a slow, twitching retrieve and . . . zing . . . fish on! We caught all manner of bass, big perch, big bluegills and big crappies. Old Ugly didn't come up with any really big bass but we got some good ones and these were bonus fish which furnished some fine fly rod sport.

Old Double Ugly, the hellgrammite, has paid his way, too. He has bailed me out several times when the moody smallmouths of the Allegheny River apparently were having nothing. Drifting him across and down a riffle below a certain big tributary has seldom failed to produce bass.

One of the problems in tying the big nymphs is

achieving a flattish body without building up too much bulk. A solution was reached by cutting an underbody of the general shape of the natural from the thinnest sheet copper—the kind usually found in hobby shops. The underbody is cemented underneath the hook shank, bound tightly with tying silk, and the finishing materials are applied over this form. The nymphs can then be completed as follows:



OLD UGLY . . . Dragonfly nymph.

Hook: Size No. 8—4x long.
Tails: Two gray goose quill fibers—very short.
Body: Dubbing of dark mole fur.
Ribbing: Nylon monofilament dyed black.
Wing Case: Section of gray goose quill.
Legs: Gray goose quill fibers set in cement.
Eyes: Tie two knots in a strand of black chenille about $\frac{1}{8}$ " apart and tie in at head. Clip off ends of chenille and coat eyes with cement.



OLD DOUBLE UGLY . . . Hellgrammite.

Hook: Size No. 6—4x long.
Tails: Two crow quill fibers—very short.
Lateral Filaments and Legs: Crow quill fibers set in cement.
Body: Dubbing of brownish black angora yarn.
Ribbing: Black nylon monofilament.

I have to keep the Old Ugly brothers in a separate box in my bass kit because none of the other flies will associate with them. But that's all right for I have a theory that ugliness attracts ugliness and this is why the bass are so fond of them. Did you ever look an adult bass squarely in the puss? He's not going to win any beauty prizes, either.



BODY FORMS, cut from thin sheet copper. Top, dragonfly nymph; bottom, hellgrammite.

The Feminine Angle **FISHING PHASES**

By MARION LIVELY

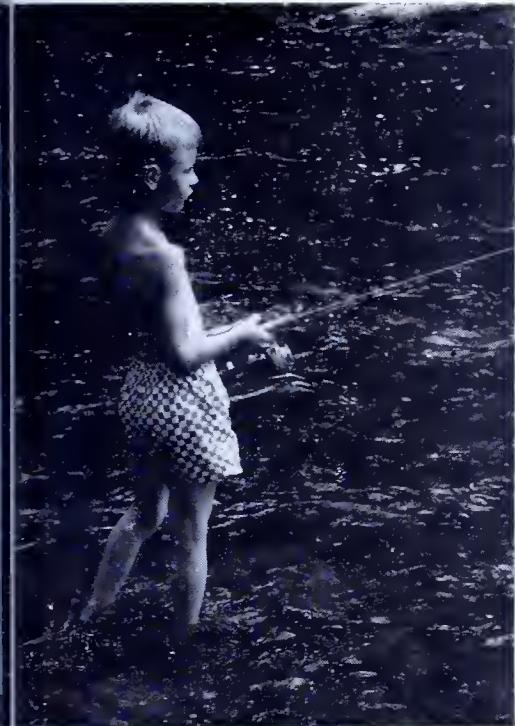
IT SEEMS that most fishermen go through a certain sequence in their fishing careers. First, the beginning angler wants to catch fish, lots of fish, and by any legal means. It's not much fun; the day's a failure if he doesn't catch more than last time. Then, as he becomes a little more sophisticated about fishing, comes the urge to catch a really big fish, a trophy. The fisherman spends his days tracking down every rumored monster while passing up lots of sporting size fish, and more likely than not comes home empty-handed. At last comes the day when these urges for multitude and magnitude have been somewhat satisfied and he reaches the final phase—he wants to catch fish on his terms. And then the fun begins!

In his quest, through the years, he has tried all methods of fishing, and has found there is one that gives him more pleasure than any other. So that's the way he'll fish—and those fish are going to be tricked into being caught the way he wants to catch them. There are many esoteric refinements of this phase: dry fly purism, fishing only to the rise. I haven't gone quite that far but I do plead guilty to being a light fly rod addict.

So come June and bass season, my bass rods stay in their cases and my two lightest trout rods come along. The lines are changed over to torpedo heads to help get those small but wind-resistant hair bugs and cork poppers out. . . . Now I'm not sure that bugging is always the best way of fishing for bass. In fact, on a gusty day when the wind catches my bug and whacks me on the back of my head a couple of times, I'm sure that it's not! But when the calm days come and when the river is low, it's the most productive, the most exciting kind of bass fishing I know. The smallmouth is such a rough, tough character that hooking one on light tackle is like having a tiger by the tail. You ought to give it a try sometime—you might join me in my addiction!

SCHOOL'S OUT!

Junior Pennsylvania anglers will be off to the rills and brooks and streams. Fishing just comes naturally to boyhood and it still clings and gives many hours of joy and contentment through the green years, through the lean years, in all of the years a man has left to him it is many things . . . a challenge and a balm all at the same time. And . . . in the rocking chair days a man has his memories and he can still have fun in his reveries.—Don Shiner.



ALL OF THE STREAM is loud and stir to a boy. This one has confiscated (a mild form of pilfering) his Dad's fishing rod.



BIG BROTHER shows little brother the catch, unhooks him for a look-see.



LITTLE GUY examines the catch closely



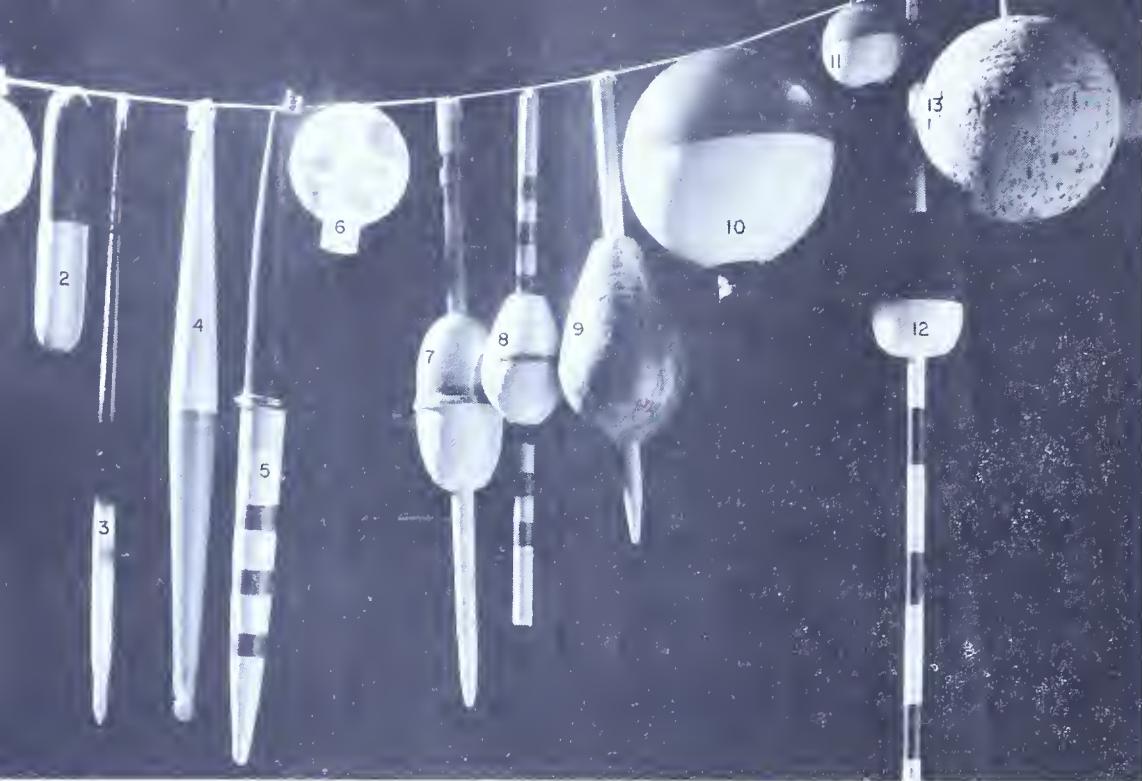
YEP . . . that's his belly.



YEAH . . . and that's his tail.



"HIS MOMMY'S lookin' for him so I'll put him back. No, I ain't gettin' my pants wet!"



An assortment of bobbers available to fishermen.

1. Plastic spin bubble bobber.
2. Adjustable casting bobber.
3. Quill float.
4. Plastic pencil float.
5. Pine pencil float.
6. Plastic spin bubble.
7. Plastic stick float.
8. Cork stick bobber.
9. Cork pear float.
10. Clip type plastic ball (large).
11. Clip type plastic ball (small).
12. Cork stick float.
13. Cork ball float.

Tackle Tips . . .

BACK TO THE BOBBER

By DON SHINER

ONE little item of tackle that adds a certain something to fishing, perhaps a backward thought to boyhood, and seldom mentioned in print, is the bobber. It can be a hollow plastic ball, a partially crumbled bottle cork, a short piece of two-by-four lumber. The telltale rings around this little bobber, signaling a fish is stealing the bait, have been responsible for millions of skipped heartbeats. A bouncing bobber is guaranteed to stir a drowsy fisherman into instant action. Ask any growing boy. He just knows that a bobber puts more fun into fishing than all the other modern fishing inventions combined.

How long has it been since YOU were privileged to watch the antics of a bobber? Most of us have long since bypassed this phase as kid stuff, concentrating our attention on the more sophisticated methods of angling. Few fishermen are content to spend a lazy afternoon along a stream, awaiting the bobber to puppet the actions of a nibbling fish.

Today, the bobber is no longer a discarded bottle cork. Today, there are designs to fit every occasion found a stream and some bobbers designed with the fishes of Pennsylvania in mind.

The carp, an extremely wary foe, is not easy prey with just any type tackle. This mud-plowing monster is super sensitive to "drag" placed on the line when dining on a tasty tidbit. To calm his nerves, a large quill, from the South American porcupine, is used for a float. This quill is much larger than those found on the Pennsylvania porky, though these, too, are adequate in size for bobbers especially when trout fishing with tiny caddis and stone fly larvae baits. The long slender quill will stand erect and submerge without any noticeable drag.

The long, thin pencil float is designed for pickerel and bass fishing with minnows. These fish are also sensitive to drag when dashing from the dining table. The pencil offers little resistance.

The newer clear plastic models are designed for fly-fishing with spin equipment. With the bubble partially filled with water, the weightless dry fly can be cast to feeding trout without

alarming the quarry by the invisible object that dropped into the drink.

The popular plastic push-button floats, ranging in size from a tiny blueberry to an oversize orange, are preferred when angling for pan fish and catties during the day. These newer models have devices which permit snapping on or off the line in a jiffy. The cork ball floats fall into this category. At night, with visibility from a lantern almost nonexistent, there are bobbers equipped with battery and bulb that blink whenever a catty pulls the string. At least one model blasts an eerie whistle when the whiskered cat toys with the food.

Several floats are of the self-adjusting type. That is, the bobber slips freely down to the hook to permit casting. Then, when the bait and bobber drop into the water, the line runs through the hollow bobber and stops when it touches a pretied knot, thus permitting the bait to dangle at a pre-determined depth.

The angler should stock several different designs in his tackle. When a fish fingers the bait but departs after the first nibble, it is often best to switch to a different style bobber before changing baits.

Bobbers are not limited only to fishing. Snap a sizable bobber to your knife or car keys just in case these fall overboard. Instead of sinking out of reach, the bobber will keep them on the surface.

Discover a real hot spot for bass? Accidentally drop the outboard over the boatside? A bobbered line will mark the location so that it is possible to find that exact spot again. In the absence of a bobber, use a photo flash bulb, an inflated toy balloon, or a rolled piece of cork lining from the tray in the tackle box.

Spend an afternoon getting re-acquainted with bobber fishing. Return once again that boyhood delight watching a little bobber dance across a mirrored pond surface. Tuck a bobber in your pocket and go fishing.

EDITOR'S NOTE—Some while ago the editor received an article plus Kodachrome transparencies on the West Chester Impounding Dam, no address nor identification enclosed by writer or photographer. Can someone claim this article?

Spinning for Bass

When spinning came to popularity one of the first groups to take to the art in a serious way was the bass angler. There had long been a gap between the heaviest fly rod lures and the lightest that could be cast with a casting rod. A few experts solved the problem with free spooling reels and light tournament rods but they were beyond the skill of some and were expensive beyond their utility. At that time the plugs suitable for this tackle were limited. The very opposite is true today.

For the guidance of the beginner we will discuss some lure types that are worthy of a place in the angler's kit. All lures fall roughly under one of the following classes: First, bottom lures; second, the sub-surface type that works at any depth from just below the surface to extreme depths; third, the surface lures. Most anglers prefer to fish this type and sometimes stick to them when other lures would be more productive.

Within the last few seasons there has been placed on the market a number of plastic lures imitating minnows, crayfish, eels, and many other varieties of aquatic life. Some of them come equipped with lead heads and weedless hooks. Their effectiveness is truly remarkable. In the same group are lead-headed jigs with feather, bucktail and pork rind trailers. They are effective when bounced along the bottom in short jerks and allowed to settle to the bottom between movements. One company manufactures a pork eel that, when attached to one of these jigs and fished slowly, will coax out the wariest bass to test its edibility. One of these black eels or a plastic night crawler with a weedless spoon to guide it through the underwater grass jungles or slither it across the tops of the pad beds will stir bass to action, especially at dawn or dusk of hot days.

Sub-surface lures that will float at rest and depend on reel pressure to bring them down seem to work best when reeled slowly. The sinkers need fast reeling to bring out their effectiveness. A friend of mine uses a small sinking plug with propellers fore and aft. He keeps his rod tip low. At times even plunging it beneath the surface reeling with such speed his reel handle is a blur and the lure fairly buzzes through the water. He has success all through the season.

A jointed pike minnow is one of the lures that is effective not only for bass but also for members of the pike family.

There are several curved lures of glass, plastic, metal and wood that have the virtue of working even when reeled at slow speeds. This is a good teaser and gives the angler a change of pace from the faster working lures. It is the lure to use where there are a number of species present. The author has taken most of the freshwater game fish on plugs of this type. This plug has one undesirable feature that sometimes causes the angler some vexation. The hooks have a habit of fouling the line when cast for considerable distance especially if there is a breeze.

Spoon type lures do not seem to be as effective on bass as they are on members of the pike family. Bass will strike a spoon occasionally, especially if the trailer hook is decorated with a rubber skirt or pork rind.

The mortality among the sinking and sub-surface lures is so great it almost precludes their use at night or when the visibility is limited. Some waters, clear of snags and obstructions, produce large specimens after dark.

Most anglers prefer to fish surface lures for the same reasons a trout angler fishes the dry fly. The lure can be seen, the strike observed; the play of the fish at the surface is better enjoyed by the angler. Fish recognize the fact they are more conspicuous at the surface and accordingly reluctant to expose themselves.

Surface lures bear little resemblance to natural food but attract by the commotion they cause in the water. This fuss and ado serve, in a measure, to hide the fact they are artificials. They can be roughly classed as paddlers, plunkers and swimmers. Most surface lures are more effective in dim light or after dark. Sometimes the darker the night the better the catch.

There is one lure with metal arms that, when drawn through the water, rolls from side to side resembling a swimmer using the overhand stroke. There are times when bass cannot resist its appeal. The writer had the experience one evening of casting this lure to a surface disturbance. The bass rolled twice to it then was hooked on the next try. When the fish was landed there was the tail of a good sized catfish protruding from its mouth leaving little room for the hooks to find lodging.

Among the paddlers the well known jitterbug is a favorite of night fishermen. This does not imply it will not work during the day. Not only do bass take it well but members of the pike family seldom pass it by. Trout, especially rainbows, often find something attractive about it.

Plunkers are the No. 1 lures for surface fishing and will often serve to take a fish that has refused all else. They work well where the trees overhang the river. Cast far back under the overhang, twitched gently at long intervals, will often bring an unexpected strike. One of the finest afternoons of bass fishing I have ever enjoyed came when the sun came out to beat down on the river after a summer thunderstorm. The heat made it so uncomfortable we moved the boat into the shade of the willows. It seemed all the bass were also seeking shade. A popper or plunker cast anywhere met with an enthusiastic reception. We cast and fought fish all the steaming afternoon. Next morning the shade of the willows did not produce a single legal fish.

Many companies manufacture a crippled minnow surface plug with spinners at the front and rear to cause a surface flurry when it is jerked. The paint job is such that about half the belly and half the back scale show as it lies in the water. This is another lure that can be used with some success during the day but fish it S-L-O-W!—*Albert Shimmel*

PICTURE OF THE MONTH

The Wooden Apple- Cheeked Fly-by-Nite

In this piece of driftwood, if your imagination is sharp, you might discern the head of a PTERODACTYL, extinct pre-historic (crossword puzzle) bird. This oddity was found by William Levan, of Nescopeck, Luzerne County, while fishing Lake Jean in Ricketts Glenn State Park. The apple was added by the photographer to show size.

—Photo by Don Shiner



OUTDOOR CAMERA FANS! . . . we'd like to print your "Picture-of-the-Month," *giving you a byline* and sending it around the world with the PENNSYLVANIA ANGLER. Send us your 5 x 7 or 8 x 10 glossy (black and white only) prints of any outdoor subject relative to fishing, boating, stream life, scenic water-scapes including the beautiful, the odd and the unusual. Prints should include on the back: Information on where taken, when, plus other data useful for identification. All reasonable care will be taken in handling, returning those we do not select. Copies of the ANGLER issue in which your "Picture-of-the-Month" appears will be sent to you. Send all prints to the Editor, PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.



-----CLIP HERE FOR **46-MAP BASS SEASON SPECIAL**-----

Send me immediately postage-paid **THE BASS SEASON MAPS SPECIAL**
Enclosed is \$5.20 (includes Pa. Sales Tax)

To:

Name

Address

Town

Make check or money order payable to the Pennsylvania
Fish Commission

Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

Bass Season Special!



Pennsylvania Waters-Highway Maps... All Counties Except Phila.

46 - MAPS - 46

FOR ONLY

FULL SET

\$5.00

FULL SET

Plus 4 per cent Pa. Sales Tax... We Pay the Postage

If purchased singly the set costs you \$18.95

You save \$13.95 with this offer!

Send Bass Season Map SPECIAL ORDER BLANK on Page 24 opposite.



Pennsylvania Angler



PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION

JUL 13 1962 National Safe Boating Week - July 1-7





Governor Lawrence Urges Common-Sense Water Safety Rules Be Observed

GOVERNOR DAVID L. LAWRENCE urged all Pennsylvanians to observe extreme caution this summer while indulging in water sports, and to confine their activities to places with supervision and protection.

Taking note of two recent weekend drownings in the State, Governor Lawrence said:

"Swimming, boating, and other forms of water recreation all too often result in unnecessary fatalities."

"I regret deeply the loss of life caused by the two weekend drownings," the Governor stated, "and I hope that similar tragedies will be avoided on Pennsylvania streams and lakes during the coming months."

"With more and more people engaging in water sports every year, the common-sense rules of water safety must be heeded as never before. Reckless boating practices must be replaced by consideration for others on the water and respect for the potential danger of the water itself."

"Swimmers must learn that when they take chances

by swimming in unprotected areas they endanger themselves as well as others on the beach, and often bring grief to those close to them. I most seriously urge that swimming be confined to such places as state parks, county and municipal pools and lakes, and other areas providing supervised protection to bathers."

"We are especially proud of the excellent safety record which has been established on the beaches of Pennsylvania's state parks. They are patrolled by trained and experienced lifeguards. Pennsylvanians who take advantage of these facilities are far less likely to show up in the drowning statistics at the end of summer than those who plunge into waters which are unsafe and unprotected."

"We are intent upon making this a safe summer in our rivers and lakes, and I have asked the Department of Forests and Waters and the Fish Commission to continue to stress the need for safety practices in and near the water and to enforce the rules of safety with a constant diligence."

National Safe Boating Week

Following is the text of President Kennedy's boating week proclamation

WHEREAS many millions of our fellow countrymen are engaged in recreational boating; and

WHEREAS increasing public participation in this healthy, outdoor sport has emphasized the need for greater attention to courtesy and safety to minimize boating incidents of the type which often lead to boating mishaps; and

WHEREAS concerted community action is required to attain the goal of making boating one of the safest family sports; and

WHEREAS, in recognition of the value of maintaining high safety standards on our waterways, the Con-

gress, by a joint resolution approved June 4, 1958 (72 Stat. 179), has requested the President to proclaim annually the week that includes the Fourth of July as National Safe Boating Week:

NOW, THEREFORE, I, JOHN F. KENNEDY, President of the United States of America, do hereby designate the week beginning July 1, 1962, as National Safe Boating Week.

In pursuance of the objectives of this Proclamation, I urge all persons, organizations, and Governmental agencies interested in recreational boating and safety afloat to publicize and observe National Safe Boating Week.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief

Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief
EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief

Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

NORTHEAST REGION

II. CLAIR FLEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Rawlinsville, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN L. DICK Warden Supervisor
P. O. Box 150, York Haven, Pa.
Phone: 748-7162

DAN HENRY Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Spring Mills Empire 4-1065

SOUTH CENTRAL REGION

HAROLD COOPER Warden Supervisor
521 13th St., Clinton, Pa.,
Phone: Clinton 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Huntingdon 3-3651

Pennsylvania Angler

Published Monthly by the

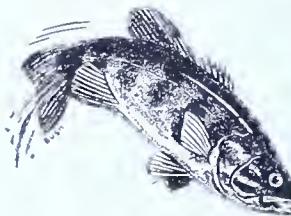
**PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA**

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

GERARD J. ADAMS, President	Hawley
MAYNARD BOGART, Vice President	Danielle
JOSEPH M. CRITCHFIELD	Confluence
WALLACE C. DEAN	Meadville
JOHN W. GRENOBLE	Carlisle
ALBERT R. HINKLE, JR.	Clearfield
R. STANLEY SMITH	Waynesburg
RAYMOND M. WILLIAMS	East Bangor



JULY, 1962

VOL. 31, NO. 7

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

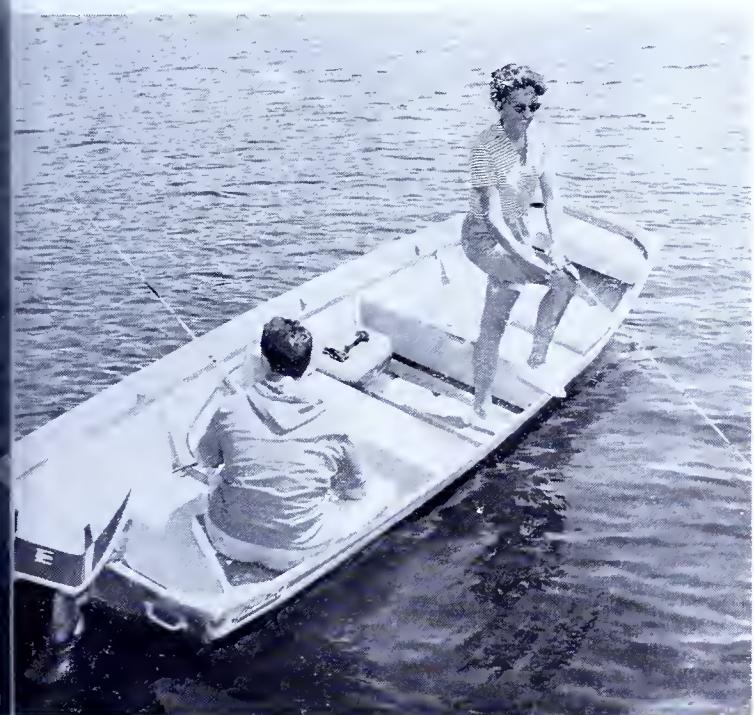
- 3 BOATING SAFETY TIPS
- 4 INVITE GUESTS ALONG FOR MORE BOATING FUN
- 5 POPULARITY OF PONTOON BOATS UP
- 6 YOUNGSTERS CAN BE GOOD BOATERS WITH COACHING AND EXPERIENCE
- 6 TRAILER BOATING EASY AND POPULAR
- 7 OUTBOARD SET AT FAST TROLL HELPS LOCATE THE LUNKERS
- 8 A NEW LAKE FOR PENNSYLVANIA—G. Howard Gates and Charles Slaton—U. S. Dept. of Agriculture Soil Conservation Service, Harrisburg
- 10 DISTINGUISHING THE PERCHES OF PENNSYLVANIA—Jack Miller and Keen Buss, Fishery Biologists, Pennsylvania Fish Commission
- 11 RECORD LAKE TROUT, FACT AND FICTION—Keen Buss, Fishery Biologist, Pennsylvania Fish Commission
- 12 BOATS IN PENNSYLVANIA
- 14 MIDDAY SMALLMOUTHS—Jim Stevenson
- 15 SOFT SELL FOR SOFTSHELLS—Bill Walsh
- 16 MUSKIES OF THE RIVER—Jim Hayes
- 16 CHAINED LIGHTNING—Albert G. Shimmel
- 17 KNOTS FOR FISHERMEN
- 17 BIOLOGY BRIEFS—Carsten Ahrens
- 18 STREAM NOTES
- 20 TACKLE TIPS—Don Shiner
- 21 BOW ANGLING—H. R. Wambold
- 22 CATCHES
- 23 YOUTH OUTDOORS

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

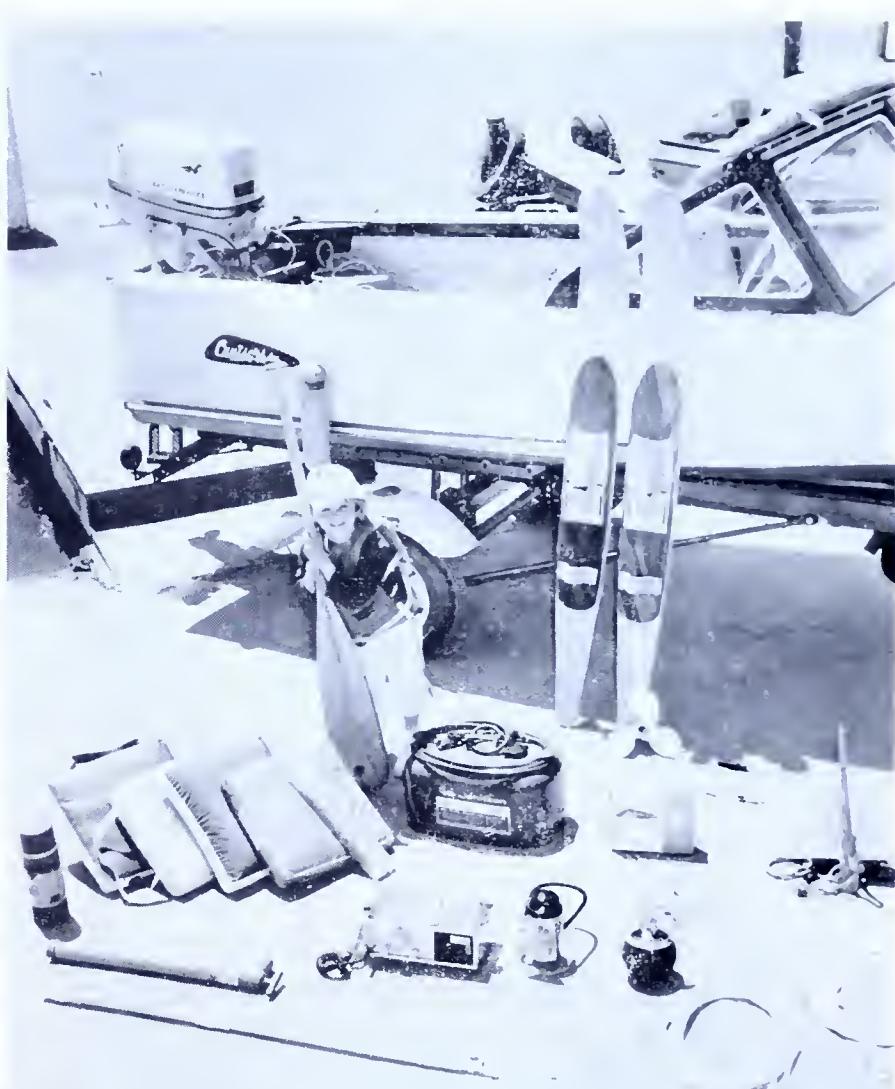
The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00, 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. *Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.*

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. *NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.*

SAFE BOATING WEEK, observed July 1 to 7, 1962, this little fan takes inventory of her family's boating safety and convenience accessories. Items include: a boat hook, hand pump, thermos jug, buoyant cushions, flares, paddle, radio, lantern, fire extinguisher, anchor, extra line, tool kit, first-aid kit, extra gas tank, spare propeller and, just for fun . . . water skis.



OBVIOUSLY, this couple is not using common sense. The woman, standing with one foot on the gunwale, has already taken the first step to an unexpected dunking. To keep the boat level and more stable, the man should be sitting toward the other side.



SAFE SKIING, DISC RIDING can be enjoyed by almost everyone using a little common sense and a proper life jacket for the skier and boater alike. Young people think this sport is the MOST!



PICNIC BREAK for this party of boating enthusiasts. Landing on shore or beach you can stretch out the legs, swim, gambol about. Time out like this can break up the monotony of a long planned cruise.

Inviting Guests to Come Along Can Make Your Boating More Fun

Landlubbers aren't a bad breed, Skipper, it's just that they're not "in the know" when it comes to boating. But this doesn't mean they are not eager to learn. You can do your land-locked friends a real favor by showing them what boating is all about.

Let's consider your neighbors down the street. Perhaps it's a couple you have known for some time and whose company you have always enjoyed. Why not ask them to be your guests for a day of boating fun. Chances are they would be more than happy to accept your invitation. But since it will be a new experience, it's only fair to give them a short run-down on what they can expect and, in turn, what you will expect from them. No doubt they will welcome any helpful suggestions you can make.

First of all, give them the word on boating attire. Explain the importance of wearing soft-soled shoes. Not only are they more slip proof but they will also be easier on the boat finish and upholstery. Encourage your guests to wear comfortable and informal clothing. Remind them to take along a jacket or sweater as the temperature on the water is often quite a bit cooler than on land. Suggest a visor cap and sun glasses to protect them from the reflection of the sun on the water.

To show their appreciation, your friends may ask if there is something they can bring. If they want to help, suggest that they furnish the lunch. From past experience, you will probably be able to recommend the type of food that will be most suitable. Or perhaps they will offer to buy the gas when it is time to refuel. Often,

it's wise to accept, for in so doing, you will help set them at ease by giving them an opportunity to graciously express their gratitude.

After your guests have had a chance to observe for a while, they may appreciate a turn at the wheel. Remember, they probably know nothing about boat handling so be patient while they are learning. Never let an inexperienced operator drive a boat in a crowded area. Wait until you are in open water and then keep a close eye on your student.

Their outing will be more enjoyable if you take the time to point out areas of interest and explain some of the fundamentals of boating and boat handling. If your guest was interested enough to accept your boating invitation, he's probably interested in learning more about the sport.

Share your boating fun with others. You'll both enjoy it and, who knows, maybe your landlubber friend will become interested enough to buy his own rig and become a future cruising mate.

Check Boat Laws and Equipment

With the passage of the Federal Boating Act of 1958, states were required to set up rules and regulations governing recreational boating. In most cases, these laws call for nothing more than common-sense precautions. However, there seems to be some confusion among boatmen in interpreting the laws.

In Wisconsin last year, for example, arrests by conservation authorities were up about 1,000 over the previous year. Half of the increase was due to the failure of boatmen to carry the required number of life preservers and a large percentage involved nonresident boaters. Regulations vary with different states so before leaving for an out-of-state boating trip, it's wise to check the laws pertaining to the state you plan to visit.



HOUSEBOAT ON PONTOONS is a sort of lazy-dazy livin' out on the water. Cruising, snoozing and trolling the live long day is heavenly.



GETTING HUNGRY? . . . well, step inside that houseboat on pontoons, have a refreshing lunch and drink, take a nap or watch TV . . . all the comforts of home plus all the panorama of the outdoors. Some deal, huh?

Popularity of Pontoon Boats Up As Result of Their Versatility

Providing the deck space of a yacht at the price of a runabout, pontoon boats have become increasingly more popular within the last few years. Whether interested in cruising, fishing, swimming or just having fun, many boatmen have found this type of boat to be ideal.

Pontoon boats are basically rafts mounted on steel or aluminum floats. They are usually equipped with side rails and a colorful canvas or vinyl canopy. Most are fitted with a steering wheel and remote motor controls for maximum ease of operation. In addition to this basic equipment, boarding ladders and diving boards of either the springboard or trampoline type can be added to make the boat a mobile swimming and diving raft.

Because of their roominess, pontoon boats are often used as party boats for entertaining guests. Food and beverage coolers can be easily stowed aboard. A table and chairs, along with a barbecue grill and plenty of food set the stage for an informal dinner party. Or, with the addition of a transistor radio, it can easily become a floating dance party. After an evening of fun, the host can start a quiet outboard motor and treat his guests to a relaxing moonlight cruise.

Pontoon boats can be powered by various sizes of outboard motors. Since speed is usually not important, most owners prefer to use a relatively small engine and outboard motors ranging from $5\frac{1}{2}$ to 18 horsepower are most popular. On large pontoon boats, especially house boats or cabin models, outboard motors of 75 horsepower or more are sometimes used. But for an average 16- to 20-foot model, a 10-horsepower motor is usually considered to be sufficient.

For fishing on quiet waterways, many anglers have

found a pontoon boat to be just the thing. There is plenty of room to allow several fishermen adequate space to dangle a line, and even have a fish fry if they desire.

Pontoon boats equipped with large outboard motors are sometimes used to pull water skiers. However, since they require a greater turning radius and take longer to pick up speed than do more conventional type boats, they are not particularly well suited for this purpose.

Although special trailers are available, large pontoon craft do not lend themselves to frequent trailer trips and launchings. As a result, this type of boat has appealed mostly to people who live on the water front or have boat mooring facilities available.

If you're looking for a big boat with a small price tag, consider a pontoon boat. Whatever it lacks in speed and mobility, it will more than make up in fun.

State Stream Map Available

The Department of Forests and Waters State stream map is again available for purchase after having been temporarily out of print for revisions.

The up-dated map, re-printed by the Forests and Waters Department, shows the State's major river basins in detail and all significant tributaries of Pennsylvania rivers. It also shows the most recently constructed reservoirs throughout the Commonwealth.

The wall-size stream map may be purchased from the Division of Documents, Publications Bureau, 10th and Market Streets, Harrisburg, for 26 cents.

With Coaching and Experience—

Youngsters Can Be Good Boaters

If your home is blessed with a typical teen-ager, sooner or later, Dad, you can expect boating to become a topic of discussion. If you now have a boat, you can look forward to junior popping the question, "Dad, how about letting me take the boat out by myself today?"

How much does a new boat, suitable for all-purpose family use, including teen-age water skiing, cost? The price range is wide depending on just what you want but to narrow it down a bit, a lightweight 14-foot aluminum runabout, equipped with steering and remote motor controls will often list at less than \$500. An 18 horsepower outboard motor runs about \$425. Add a good trailer, and for not much over \$1,000, you'll have a sporty rig well suited for a variety of family uses.

Now let's consider the other situation—you've got a boat and your teen-age son asks to use it by himself. Before you come back with a quick answer, it's best to give it some serious thought. Age does not necessarily determine boat handling ability, yet, an unqualified youngster should not be allowed to operate a boat without proper supervision. Assuming you have taught your teen-ager the basics of boating and he has had some experience behind the wheel, ask yourself several questions. Does he understand the principles of boat handling? Does he abide by the boating "rules of the road"? Does he respond well to various situations? Does he show concern for the safety of passengers and other boatmen? Is he responsible in other matters? If you can honestly answer "yes" to every question, your youngster is probably qualified to operate the boat without supervision.

Boating is a wholesome pastime that should be encouraged among young folks. In connection with related sports such as water skiing, swimming and disc riding, it offers the youth an opportunity for physical development. Using the boat will teach him the meaning of responsibility. Boating will also give him a chance to learn more about nature and the out-of-doors.

Of course, not all teen-agers are "hims." Perhaps you have a daughter who thinks boating is "the greatest." With modern equipment, even the most petite teen-age girl has no difficulty in handling a boat. Not too many years ago, operating an outboard motor often called for the ingenuity of a mechanically minded male. But the situation has changed and today, boating and boat driving appeal to men and women alike.

Before giving a youngster your final approval, set up a few rules and stress the importance of having them followed. Unless you're equally familiar with the boat handling capabilities of friends who will no doubt be included, it's best that they not be allowed to operate the boat. In the event of a mishap, you are the one who will be held liable. For added safety, insist that the entire "crew" wear life jackets while aboard the boat. Make it clear that any "horseplay" will result in the loss of future boating privileges.



SCUBA DIVING is fast becoming a top sport with Pennsylvania outdoorsmen. SCUBA means "self contained underwater breathing apparatus." A good base boat like this trim craft is equipped with a sturdy boarding ladder.

Trailer Boating Easy and Popular

The majority of outboard boat owners dock their boats in their back yards, relying on their cars and boat trailers to take rigs to the water.

Boat trailers today, if used, maintained and rigged properly, add very little driving time to trips and little extra wear on the car. They also allow boating enthusiasts to visit and explore lakes and rivers throughout the United States and neighboring countries in addition to those in their own locales.

While trailering a rig is simple, there are a few things to keep in mind before heading off on the highways with trailer behind for the first time. Insurance is important. Check with your agent to see that your boat insurance covers the rig while in transit.

Protect your equipment from damage. Make sure the boat is tied down securely. Either tie the motor down so it cannot bounce from sudden bumps or lock it in the tilt position for the same reason. Cover the motor with a canvas hood if traveling over dusty roads.

Proper location of the boat and motor on the trailer is important. If the rig is balanced properly with about 50 to 60 pounds more towards the front, it will trail the car better and exert less drag. Whether state law demands it or not, it's a good idea to have tail, brake and turn lights on your trailer, especially if you own a large rig.

Don't forget the safety chain from the trailer tongue to the car's frame (in most states it's a law) and a side view mirror on the car which reflects a good view of the road behind. Permanently installed frame-type trailer hitches are safest and they generally will outlast the automobile.

Driving the car with trailer behind requires no special talent, just common sense. Drive a little slower than usual to allow for increased braking distance. Some states have special speed laws for trailering. Learn them. When passing, remember two things: your vehicle is probably twice the length of the car alone—it takes more open space to pass—and there's more drag on the engine—your car's pickup won't be as good. Swing out a little more when you turn and, if your trailer is not equipped with turn and brake lights, signal by hand. With boat trailer behind, cars following might not be able to see your car's signal lights.

Backing a trailer isn't difficult but requires some practice. Generally, trailer wheels are relatively far from rear wheels of the car, which makes it easy to control. Watch out for obstacles behind. A low rock or stump could damage your engine.

Keep in mind that your trailer will turn opposite the direction the car is turning when backing. When backing your trailer into the water, keep your car's rear wheels on solid footing. Some boatmen even install trailer hitches on the front of their cars to keep the power wheels high and dry.

Get in the habit of checking your trailer when you arrive home. Check the tie-down equipment for signs of weakness; see that all bolts are tight; check lights and tire pressure and grease wheel bearings and other moving parts when necessary. When the boat is left parked on the trailer for any length of time, release the tie-down devices. But remember to tighten them before you take to the highways again.

The use of precautions plus good judgment on the road makes trailer-boating almost as easy as having a boat parked on the water next to your front door.



Outboard Set at Fast Troll Helps Locate the Lunkers

Fish don't have to be feeding to be caught. Bass, especially the real lunkers, are often just plain ornery enough to strike a lure whether they're hungry or not. The secret, of course, is presenting them with the right lure in the right manner. But before you can do this, you must first locate the fish.

Most game fish, including bass, tend to school in deep holes or sanctuaries according to the Evinrude Motors booklet, "Outboard Fishing." At least once in every 24-hour period, the fish will leave their sanctuary and go to the shallows to feed. In so doing, they will always follow the same migration route, usually a bar or ledge. As a result, larger game fish will be found in one of three different but closely connected areas: the sanctuary, the migration route or, for brief periods, the shallows.

The first step in finding the fish is to determine the general area they are most likely to inhabit. The configuration of the shore line is often a clue to this. A point of land jutting out into the water will usually continue as an underwater bar and may well be a migration route. This is where you should start.

First, cover the shore line area off from the point of land with a small free running lure. Studies have proven that game fish spend only about five per cent of their time in the shallows, so if a few casts fail to produce a strike, move into deeper water. Working out from the point of land, try a bottom bumping spoon plug. Troll back and forth over the area with your outboard motor set at a fairly high speed. In shallow water, a 5½-horsepower model, for example, should be operated at from one-half to full throttle. In deeper water, slow it down a bit.

If you get no action, continue to work into deeper water changing to heavier lures so as to keep them on the bottom. Troll at varying but faster than normal speeds covering a fairly wide area off from the point of land. At some point, either on the migration route or in the sanctuary located at the end of it, the fish will be found. A strike may mean you have located the fish. Mark or remember the spot and try another cast. If you get another strike, anchor the boat and continue to cast in the same area keeping the lure bumping on the bottom. With any luck at all, it won't take long to fill your stringer with real lunkers.

This system of fast trolling with bottom bumping lures is not just a theory but a proven method of catching more and bigger fish. Naturally, it won't work every time but you can be sure that the fisherman who uses it consistently will do a lot better than the one who doesn't. It's based on the fact that to catch fish, you must first locate them. And that's one point no fisherman will argue.

* * *

When meeting another boat head-on, bear to the right, the same as you would if driving a car.

(More Boating on Pages 12-13)

By G. HOWARD GATES

and

CHARLES SLATON

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Harrisburg, Pa.



AVERAGE ANNUAL FLOOD BILL of \$22,000 is charged by Mill Run to the City of Meadville.

A New Lake f

THE magic pull of water is everywhere. It's felt hardest in areas with large populations where access to public waters is scarce. More leisure time, and the attractiveness of boating and fishing as a family sport, have added emphasis to our need for more recreational water.

In Crawford County they are turning a century old frog and mosquito breeding swamp into a fishing oasis. On the planning board is a lake $3\frac{1}{2}$ miles long covering 600 acres. A perimeter up to 200 feet across surrounding the lake will be open to public fishing. This is part of the plan the local people have envisioned for the Mill Run watershed.

Turning the huge swamp into a lake is a feat of engineering skill since the swamp drains north into Mill Run and south into Mud Run. Two low dams, using 29,000 cubic yards of earth, will be built simultaneously to plug both streams. The area between the dams will form one of the largest fish and wildlife pools in Pennsylvania under Public Law 566.

The pool at its widest point will be one-half mile and will taper to a minimum width of 500 feet at the dam. Water depths will average above eight feet with a maximum of 17 feet. The outer edges of the lake will have sufficient shallow water to encourage water plants

and provide reproduction areas for fish and other aquatic life.

During periods of heavy runoff, flood waters will be stored in the lake area. The lake will expand to cover an additional 100 acres of land. This multiple purpose site, along with a single purpose flood prevention dam, will provide almost complete flood protection to the City of Meadville from Mill Run.

The 1956 flood in Meadville helped launch the watershed protection and flood prevention project for Mill Run. That year Mill Run spilled through the business section of town causing over \$170,000 in damages. In 1948, 1949 and 1950 the businessmen barricaded their doors and sandbagged their windows to keep Mill Run from reaching their main floor merchandise.

In seeking solution to the perennial floods caused by Mill Run, former Mayor Simmonnetta, Dr. Winslow and other residents of Meadville were directed to the Soil Conservation Service which administers the small watershed program. In 1959 an application for watershed protection and flood prevention for Mill Run was sponsored by the City of Meadville, Crawford County Commissioners and the Crawford County Soil Conservation District Directors. A field examination showed that there was a solution to the problem which had remained unsolved for many years in this area.



MILL RUN put on its own show in the streets while theater-goers watched "The Conqueror" of Meadville. Prior performances were held in 1948, 1949 and 1950.



TWO DAMS will convert an old swamp into a new 600 acre lake. During periods of heavy runoff flood waters will be stored in the lake providing almost complete flood prevention for Meadville from Mill Run.

Pennsylvania

A plan for the watershed was completed a year later calling for land treatment measures throughout the entire 7,000 acre watershed. Two flood prevention dams were included in the plan. One of the dam sites was scheduled for multiple purpose use. This plan was approved by the U. S. Congress.

Engineers of the Soil Conservation Service estimate the average annual flood damage to Meadville from Mill Run to exceed \$22,000. Most of the damages occur during periods of heavy runoff which cannot be accommodated by the pipe carrying the normal stream flow under the city. During floodtime the water rises quickly and recedes within several hours leaving the town coated with a heavy layer of farm soil.

This year the development of the multiple purpose dam got underway. The needed land was purchased from 27 landowners in the lake area by the Pennsylvania Fish Commission. The Commission is also sharing in the cost of constructing the added water storage facilities in the dams which are for fish and wildlife purposes and will manage the completed lake for public uses.

Engineering designs were jointly prepared by the Soil Conservation Service and the Fish Commission. Con-

tracts for clearing up to 500 acres and for constructing the dams have been awarded by the County Commissioners. Earth movers are now forming the dams with completion date scheduled for late this year.

The land treatment phase of the project is on schedule. Cooperators of the Crawford County Soil Conservation District are developing plans for using diversion terraces, strip cropping, waterways and tree planting to slow down the runoff. These practices will aid materially in reducing siltation of the lake from the agricultural land in the watershed.

Businessmen like John Kerr, a jeweler in Meadville, have high praise for the project. In expressing the community's feelings, John says, "When our project is completed, it will be a new and pleasant experience to wake up during a thunderstorm without wondering whether to get up, go to our stores and erect the window barriers which we have used over the years to keep out Mill Run."

The Mill Run project will have an economic benefit to the entire area. Both farm and nonfarm groups will feel its effects. Expanded and new facilities will be needed to serve the expected visitors to the lake, for water has a magic pull.

The Perches

of Pennsylvania

(Family—*Percidae*)

By

JACK MILLER and KEEN BUSS

Fishery Biologists

Benner Spring Fish Research Station
Pennsylvania Fish Commission

INCLUDED in this family are the walleye, yellow perch, sauger, blue pike and numerous species of darters. The members of this family have an elongated body with two distinct dorsal fins, one of which is spinous. The anal fin also has one or two spines.

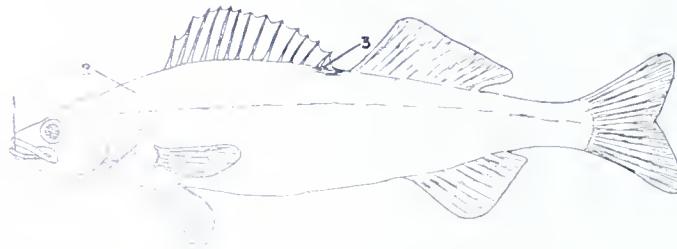
The yellow perch and walleye are found in lakes and rivers, the sauger and blue pike occasionally in Lake Erie while the darters are usually considered stream dwellers.

The perches are spring spawners, the spawning period occurring usually in April and May. The spawning habits are varied; the yellow perch lay their eggs in ribbon-like masses in shallow water; the walleye disperse their eggs randomly over gravel shoal areas and the darters vary their spawning habits according to species.

All members of the perch family are carnivorous, feeding on crustaceans, insects and fish. Anglers seek these fish by casting, trolling and still fishing using a variety of artificial lures and live bait. Only the walleye and yellow perch enter the catch enough to be considered important game and pan fish in Pennsylvania.

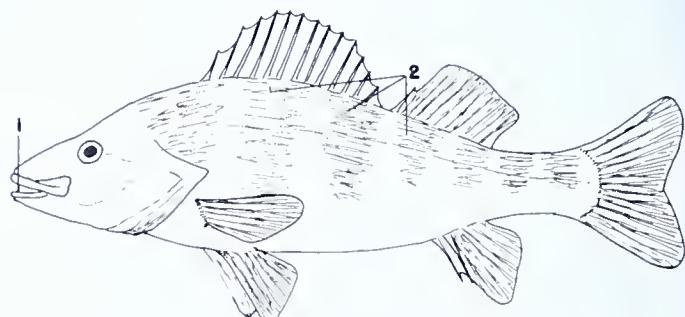
The walleye (*Stizostedion vitreum*) is a brassy colored fish with irregular spots, not in rows, visible on the dorsal fins. The walleye is generally found in the larger rivers, lakes and reservoirs in Pennsylvania. The maximum size is about 30 inches.

The yellow perch (*Perca flavescens*) varies in color, the sides being yellow or green with six or more vertical cross-bars. The belly is white and the back usually dark green. The maximum size is about 14 inches.



Walleye

1. Sharp pointed teeth on lower jaw.
2. Body brassy, yellow olive in color—not barred.
3. Large black spot at posterior base of spinous dorsal fin.



Yellow Perch

1. No sharp pointed teeth on lower jaw.
2. Six or more dark vertical bars on yellow body.

RECORD LAKE TROUT

FACT AND FICTION

By

KEEN BUSS

Fishery Biologist

Benner Spring Fish Research Station
Pennsylvania Fish Commission



THIS 102-POUND lake trout, taken in 1961, broke all existing records for the species. The weight of this fish was not its only unusual feature.

*Photo courtesy of E. J. Crossman,
Royal Ontario Museum, University of Toronto*

IN AUGUST, 1961, a commercial fisherman on Lake Athabasca, Saskatchewan, gill-netted a 102-pound lake trout, the largest of its kind ever caught. Probably never in the recent history of fresh-water fishes has a monstrous fish been taken which surpassed the old authentic world's record by such great proportions. This fish was almost 39 pounds greater than the *Field and Stream* record rod and reel trout and surpassed the previously accepted commercial catch by 21.5 pounds. In comparison, each new record of the king of fresh-water fishes, the fabulous muskellunge, is usually increased by only a few ounces or pounds. Why, then, was this lake trout so much larger than all the previous records? There is a reason for this and also quite an unusual story of how it was taken, but first let's go through the fishing annals of the past 150 years to learn more about the lunker lake trout of another era.

It seems that the older the story, the greater the size of the fish. The first record of an exceptionally large lake trout was in 1836 when a 120 pounder was reported taken from Lake Huron. Other, more believable records, don't begin to come up to the size set by the early 19th Century trout. In 1864, an 88-pound laker was caught at Grand Haven, Michigan, and it must be assumed that this trout came from Lake Michigan. In the early part of this century, in 1906 to be exact, an 87-pound lake trout was reported caught on hook and line at Lake Bennet, Yukon Territory. In more recent times, in September, 1955, a new modern record was set by commercial fishermen when an 80.5-pound fish was netted from Lake Athabasca. This was quite an incredible record for the time, because the world's angling record for lake trout reported by *Field and Stream* Magazine was only 63.1 pounds caught in 1952 in Lake Superior.

It is very obvious, with the exception of the 120 pounder reported in 1836 which could have been more fiction than fact, that the 102-pound lake trout taken in 1961 is the granddaddy of them all.

On August 8, 1961, when Orton Flett, an employee of a commercial fishery company, pulled his gill nets, the 102-pound trout was caught by his teeth and the bony protrusion of the upper lip. His luck was no better than the average rod and reel fisherman, for as they hoisted the huge fish on board, it suddenly flopped loose and took off for the deeper waters of

this large, arctic lake. However, it turned out to be Flett's lucky day and an unfortunate one for the lake trout. As the trout dove for the depths, it again became entangled in the net and this time was hoisted aboard. One of Mr. Flett's helpers immediately sat on the side of the fish to prevent it from thrashing overboard. With great care the two men finally got the trout in the ice-filled hold of the boat without marking or damaging it. Once safely back in port, the fish was shipped to the Royal Ontario Museum where the biologists made some rather startling observations.

In the first place this 102-pound fish was a "Mr. 4 x 4." It was only 50 inches long (the 63.1-pound angling record was 51½ inches long), but it was 44 inches in girth. In other words, slightly more than 4 feet long and slightly less than 4 feet in girth! The biologists suspected that perhaps this huge paunch had distorted the vertebrae. Xrays refuted this theory because the skeleton was normal. Strangely enough, even after the fish was shipped from Lake Athabasca to the Museum in Toronto, it still weighed 102 pounds and was 49.5 inches long.

A careful dissection of the innards gave a clue, perhaps, why this fish grew out of proportions. The reproductive organs had not developed. What the fishermen had caught was a capon among fishes, a sexless creature of immense size.

In the stomach of this great fish were about 6 pounds of rough fish, probably gorged from the gill net in which it had later become entangled. A study of the scales revealed its age at between 25 and 30 years.

To make this once-in-a-century tale more implausible, about a week later a 95-pound lake trout was brought into the same fish processing plant but nobody bothered to preserve it because compared to the 102 pounds, it looked small.

Admittedly, this tale sounds as if the hot sun and the rocking of the boat might have affected our minds, but if you should visit the Royal Ontario Museum, you will find a painted latex model of this great fish. This is a fact—not fiction!

NOTE: The author is indebted to Dr. E. J. Crossman of the Royal Ontario Museum and J. J. Kelcher, Fisheries Research Board of Canada, for the records and accounts of these large lake trout. The author is responsible for the interpretation.

Boats
in
Pennsylvania



LITTLE OLD ROWBOAT is about the most common type craft on Pennsylvania waters. Rugged and safe it gets you where you want to go provided you have the necessary arm-power to row 'er around.



OUTBOARD CRUISER has plenty of open area aft and cabin space forward. Fine traveler for larger lakes, rivers, this fast craft is a favorite of many Pennsylvania boaters.

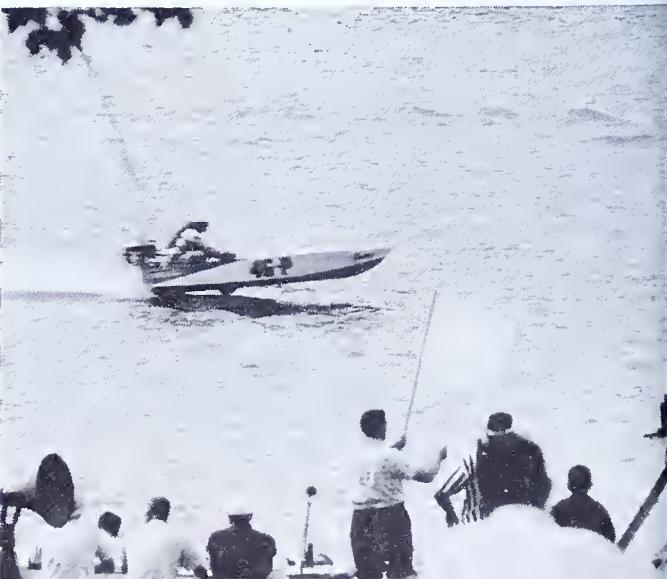


RUNABOUT AND PONTOON, the former perhaps the most popular craft with boaters while the latter, a comparative newcomer, is gaining popularity with boaters who are not in a hurry to get much of anywhere but prefer comfort and they really get it as you can see. Both are used extensively for cruising or fishing.



RUBBER RAFTS are increasingly popular as "float trips" gain favor with Pennsylvania boaters and fishermen. Deflated, they can be carried to almost any point in wild territory.

SPEED BOATS are found where there is enough water to let them out. Weekend races draw large audiences in water areas set aside for this type of spectator boating sport.





CANOE . . . most ancient of them all is still a good craft for getting around inland waters, narrow channels and negotiating swift riffles. The canoe is rapidly coming back into favor with Keystone outdoor people.



BIG WATER of Lake Erie, or the lower Delaware is home for this sleek cabin cruiser.



KAYAK, while not exactly common in the Commonwealth, is none-the-less much used by boating enthusiasts and fishermen who like to go it alone.



SAILS . . . and who doesn't like to watch a proud sail-boat glide effortlessly along, a challenge to modern seamanship as it was to the sailors of past centuries before the mast.



AIR BOATS at Millersburg on the Susquehanna, fine craft for navigating the shallow, rocky river where many another type boat could barely get through without constantly replacing pins.

CAR-TOP PRAM is smallest of Pennsylvania craft, light, easily handled, can be put in anywhere but particularly on shallow river areas where Pennsylvania Fish Commission access sites are made to order.



Midday Smallmouths

There is a 200-yard stretch of the scenic Allegheny River between Warren and the site of the controversial Kinzua Dam that has been very productive for me this year during the midday hours, and just last week it provided two more hours of the exciting action I've come to expect of it.

Pushing through a jungle of sumac and Virginia creeper, I reached the railroad grade which runs between the Hemlock Road and the river's west bank. I could feel keen anticipation rising within me as I crossed the twin bands of steel and skidded down the cindered embankment to the river, arriving on my feet for a change.

Quickly assembling my spinning rod, I attached a favorite lure, one of the floating-diving models, to a tiny snap on the monofilament and eased into the shallows.

Facing upstream, I cast first to the shoreline, dropping the lure at intervals of about 6 feet toward midstream and working it on the surface after each cast until it was within 20 feet of me. Steady reeling then retrieved it the remaining distance under the surface and with fair action, a maneuver which sometimes induces a following bass to strike viciously.

As this initial stretch is relatively barren of cover of any description, I wasn't too disappointed when no strikes were forthcoming, feeling that the rocks ahead would produce. A cast to the first boulder bore that out.

The lure landed with a tiny "spat" on the upstream edge of the submerged cover and immediately disappeared in a heavy swirl. I struck, but harmlessly, as a strong breeze had bellied the line on the crosswind cast causing far too much slack for a solid strike on my part. Continuing to manipulate the lure, I hoped the bass would strike again as I hadn't turned him. The wary smallmouth failed to hit again, however, on this and subsequent casts. After trying two other lures in vain, I gave up and moved on.

Just above here, the good cover begins; scattered rocks submerged in 2-4 feet of water. Remembering the missed strike just seconds before, I waited several minutes for the wind to subside a little. When a lull came, I cast to the upstream edge of one of the rocks. Seconds after it landed the lure was greeted with a boiling strike. I didn't miss this one. The bass, a fat and sassy 15-incher, took to the air four times before trying his best to entangle the slender line in a nearby snag. Finally I netted him and after posing for a picture, he was released, tired but unharmed.

These first two strikes set the pattern; cast to a submerged boulder or jumble of rocks and be prepared for an instant, smashing strike. Here the casting accuracy, resulting from many hours of back-yard practice, again paid off. Some of the casts were windblown and proved fruitless; they had to be on target. These smallmouths wouldn't follow the lure at all, but struck within seconds of when it landed.

Before the next hour had elapsed, I had caught and released nine good bass, four of them in the 14-15-inch range. These aren't large fish in my book, but their lack of size is compensated for by their spectacular jumping ability, always displayed in shallow water.

Much of my success in this type of angling can be attributed to my use of the silent-dive cast as described in Charles Fox's superb book "Advanced Bait Casting." I will not attempt to describe the cast here, but it enables the angler to drop the lure on the surface with only a tiny "spat" in contrast to the fish-frightening splash which usually results.

Nearing the swift foamy water at the upper end of this stretch, I switched to a surface lure with a small flashing propeller aft. The swirling wake of a large boulder near the center of the narrowing channel drew the next cast. Reminiscing

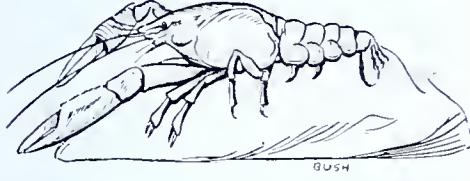


over the many 18-inch-plus smallmouths I'd taken from behind that very same boulder on other occasions. I had worked the white enticer almost to my feet when suddenly a wake appeared inches behind it. Before I could collect my wits, a bass struck savagely, splashing me from 10 feet out. Luckily he hooked himself as he turned and streaked for deep water. However, the limber rod and six-pound test line eventually proved too much for the fine 16-incher, and he slipped quietly into the waiting net. Again I snapped a picture, then eased the barbless hooks from his mouth and returned him gently to his watery home.

As a rule, trophy bass or "Old Snifters" as my friend and outdoor companion F. M. "Mac" Geer labels them, evade detection during this time of the day, preferring the solitude and coldness of deep water till they venture into the shallows under the protective cloak of darkness.

However, the real battlers of the species, bass in the 12-16-inch range, will provide plenty of action for both novice and expert. So locate a stretch of water 2-4 feet deep with a good current and ample cover, limber up that light spinning rod and soon you'll be joining the growing fraternity of anglers who have discovered that some of the finest smallmouth bass fishing can be enjoyed during the midday hours.—*Jim Stevenson*

Soft Sell for Softshells



There's an old saying along the Lake Erie shoreline that a bucketful of softshell crawdads will get you a bucketful of bass most any time. We saw a string of five smallmouths that weighed over 25 pounds—taken the third week in October—all victims of crawdads. But these particular crawdads were harder than pebbles under a boy's feet the first barefoot day of springtime.

During a recent Pennsylvania State Fishing Tournament on the Allegheny River we served as a judge; one of our duties being to open every fish that was entered. We opened dozens of bass, ranging in weights from a pound or so to three pounds, 11 ounces. Only a couple didn't have crawdads in their innards. HARD crawdads.

All of which leads us to believe that insisting on softshells may be just one of those fishermen's foibles based on what he thinks HE would rather eat if he were a fish and not on what the fish would actually take.

You can't argue, of course, with the fact that softshells do take bass. Nor can you escape the fact that the reason may be that most fishermen won't use hard ones. If you fish with a clothespin long enough a bass will eventually hit it. Even though bucktails and other lures are better.

Most everyone has a favorite lure on which he takes the most bass. Chances are he uses it the most—makes more casts with it; has learned to "work" it in the most bass-tantalizin' manner. But when he loses it he gets another one, sometimes an entirely different design and color pattern, and learns to use it equally as well in time. Same might be true with crawdads—hard or soft. We suspect it is.

After all, the digestive system a bass has working for him can handle most anything he cares to consume—even hooks. The hard shell of a crawdad is no obstacle to this finny disposal system a bass carries around in his pot belly. Nor do we believe

the pincers of a crawdad—hard or soft—are much of a threat to the bass' formidable jaws. Nothing short of a pair of man-wielded pliers could do much damage to this set of munching equipment which, some scientists tell us, has few nerve endings and is probably impervious to pain anyway.

Probably what is more important than the hardness or the softness of a crawdad's shell in fishing for bass is the size of the bait. We have never seen a really BIG crawdad inside a fish. In lake fishing for bass—mostly a trolling or drifting-with-the-wind proposition—we have used only the tail portion of large crawdads with good success. But NEVER an entire large one.

From our observation we would say that a bass finds it mighty difficult to pass up a crawdad between two and three inches in length. And he'll not be too much interested in anything over four inches in length.

And to steer over to another kind of fishing for a minute, you'll find that when bait-fishing for trout, a one-and-a-half inch crawdad—hard or soft—is worth a dozen worms. We have found crawdads in trout stomachs time and time again when opening them up to see what they were feeding on. Walleyes are not as susceptible to crawdads as are bass, but they're not immune either.

By the time good autumn bass fishing rolls around, Mother Nature has provided an excellent supply of crawdads of the correct size. The little feller which was only three-fifths of an inch long in July is just about two inches in length in October. A small amount of effort on the right catching equipment reaps big dividends—in ease of catching crawdads and in the later fishing enjoyment.

Most important tool is a wire net. Use metal screen to fashion the net and attach it to a sturdy but pliable wire frame. Construct it in the form of a triangle so that the broad part can be placed on the bottom of the stream you're searching in and the point ends in a handle. Put the screened net BEHIND the crawdad and he'll back right into it when you threaten to tickle his whiskers with a stick.

Now before you get any fancy ideas about using cloth netting, the reason for metal screen is because sometime it will be necessary to place your net upstream of the intended crawdad victim. If it is made of cloth you'll find it turned inside out and of no value in catching your bait. Even if you took them all downstream-wise, you'd find the bass bait difficult to remove from a cloth net.

Nighttime will find more crawdads out of hiding. A gasoline lantern or strong flashlight will help. Daytime, simply turn over rocks until you locate one, then concentrate on him until he's netted and start over again. When crawdads are "shedding" their outer shells in the process of normal growth, the discarded shell is often spotted. Such a place is sure to have a "softshell" around somewhere.

This brings to mind a story we heard about a friend of ours who was sent out to gather softshell crawdads some years ago. He was told to go to a certain stream at night; travel along its banks until he noticed the "shed" (the discarded outer shell of the crawdad) and that would be the best place. He walked for miles, later claiming that the only shed he saw was on behind a farmhouse six miles up the creek and that there were no crawdads at that point.

But shed or no shed—hard or soft—crawdads are still good bass insurance. Don't be afraid to try 'em either way.—*Bill Walsh*

The expression "clean as a whistle" began in the 10th century when it was a custom for boys to make whistles out of smooth, clean sticks or reeds. Once the inside was hollowed and cleaned it made a good whistle.

Muskies of the River

So—you think you've had thrills. Well, maybe you have. But I'd argue the point if you've never been hooked to a streamlined stream-ranging musky.

The stream-reared musky, like a stream-reared small-mouth, has a built-in fighting quality above and beyond that common to his lake-dwelling brothers.

Further than this, if you're doing it the hard way, you'll fight him with your feet planted on a slippery stream bottom rather than sitting comfortably in a boat.

And too, in stream fishing for muskies the old marauder has everything in his favor. The fast water, the deep water, every sunken object, every protruding rock, even the slimy stones under your feet will be worked overtime by the 'lunge as he struggles to maintain his cherished freedom.

Yet when you've put in a day or days at this fascinating sport you'll rate it the finest fishing you've ever had.

And you don't have to drive a thousand miles to get to it either, thanks to the efforts of the Pennsylvania Fish Commission and good old Mother Nature. The Allegheny River for the past few years has been truly a hot spot for this sort of angling and according to the fish culturists is producing enough fry each summer to keep it hot in this respect for some time to come.

There's no "best" section of the river for musky fishing, but some sections do rate No. 1 with fishermen.

Up around Port Allegany, from about two miles

above the town down to the point where the river crosses into New York State, local fishermen will tell you, "The river's full of them—just under legal size." Yet a careful check with the old musky fishermen up that way will convince you that more fishermen are taking more legal muskies than they ever have before, even though the river is well stocked with smaller ones that haven't yet reached maturity.

From the point where the river again enters Pennsylvania, at Corydon, all the way down to below Franklin things are "a poppin'" too. Every one of the more than one hundred eddies in this stretch of river supports a good musky population and there are plenty of them that approach "lunker" proportions.

In addition, many of the side streams such as the Tionesta Creek and French Creek are contesting the river's record as 'lunge producers.

Although many of the better fish are taken during the summer months, there is no denying the precept of the experienced musky fisherman that "there ain't no fishin'" until after the first killing frost. When the weather turns cold it seems to put the river rangers on a rampage and they'll hit most anything that floats, swims, or crawls.

So if you're looking for a new thrill in fishing—something that will raise your temperature—take a fling at musky fishing the Ole Allegheny.—JIM HAYES

Chained Lightning

When a pickerel takes a notion to feed he will strike a lure with such savagery that the family has been named the water wolf. He will come for the lure again and again. He has none of the shrinking violet manner that characterizes the trout. One specimen of about three pounds struck a lure and got his cheek scarred for about two inches when he missed. Two casts later he took the same lure and was landed. A trout under like circumstances would have been off feed for at least the remainder of that day.

The pickerel is well adapted as a predator. He is streamlined for speed, with a broad tail that drives him forward in quick sprints. His wide mouth is armed not only on the jaws, but on tongue and mouth roof as well with hundreds of needle point teeth all pointing backward into his cavernous maw. His dark back, the golden bands on the sides between chain markings, his wide bill, the scaled, fierce eyes are trademarks of this fresh-water fighter.

Where to find pickerel? The answer is . . . almost anywhere. In fast, unpolluted water that is fairly still and has an abundance of forage fish. Sometimes in the most unexpected places. The backwaters of most trout streams harbor a few of these predators. Many

beaver ponds support a good population, but his favorite haunts are the beds of lily pads and pond weed mats that grow in the shallows of fresh-water lakes and the backwaters of our bass rivers.

Often when fishing bass water we take pickerel by conventional methods. He seems to dislike fast water but will lie in the eddies at the side of a fast chute, possibly because forage is sometimes tumbled about by the current. Here he strikes with speed and force. The fight is truly sporting on light tackle.

My favorite pickerel grounds are the shallows at the upper end of a deep lake. Here in summer and early fall the big ones lie in the shade, watch the openings between pads and the edges of sunken drift logs. Schools of small fish congregate here to take the sun. At evening the frogs come out to dine. Many times he will strike viciously at any surface disturbance. I have seen red-winged blackbirds walk about the pads in search of insects. At times a pickerel will literally tear a pad to shreds in his effort to catch the bird, that leaves with plenty haste. Small animals, ducklings, frogs, crayfish and even the small bullhead with his protectively sharp spines are consumed with relish.

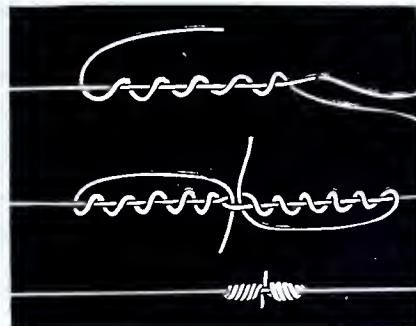
—ALBERT G. SHIMMEL

Knots for Fishermen

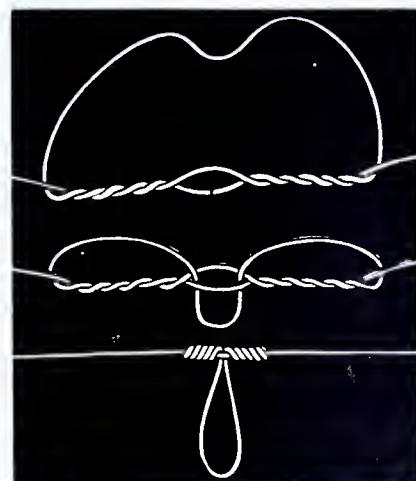
Courtesy Garcia Corporation

The four knots shown below are of especial interest to anglers. Each of these knots, IF properly tied, will serve admirably. An ordinary overhand knot tied in monofilament has less than 50 per cent of the strength of the same line unknotted. This is so no matter how "carefully" the overhand knot might be tied. On the other hand, the barrel knot shown below may result in any strength from about 60 per cent of the unknotted line strength to almost 100 per cent—depending upon the care used in tying.

The most important rule to follow is to pull up slowly and evenly when drawing a knot tight. The line should never be jerked in an effort to assure a tight, snug knot. Another important rule is to put five full turns around any standing line. Fewer than five turns will result in a noticeably weaker knot. No appreciable improvement is noted when the number of turns is increased above five.



BARREL KNOT (Sometimes called "blood knot")—This is an outstanding favorite for tying monofilament to monofilament—whether the two lines to be joined are the same size or considerably different, as, for instance, 20-lb. and 40-lb. test Garcia Super-Platyl. One advantage of this knot is the smoothness with which it passes through guides and tip-top. The ends are trimmed to leave no spurs showing. Follow steps 1, 2, and 3 carefully, and draw the finished knot up slowly and snugly.



DROPPER KNOT—This knot produces a dropper loop without introducing any material weakness in line or loop. The dropper loop may be made any length desired, as is obvious from the sketches. Remember—five full turns for full strength. Draw the knot up slowly, evenly, tightly.

BIOLOGY BRIEFS

A fishing trip may take one into many out-of-the-way places of the world, but it rarely leads him away from a plant that some anglers think haunts their sport—the cattail. It grows at the edges of waterways (unless the current is too deep or swift) practically around the world. There are two species*: one is tall and has broad, long leaves; the other is short and has slender, long leaves. But both of them have those brown, plushy "tails" atop their stiff, unjointed stalks . . . "like wieners on a stick," my young uns used to say.

Cattails are found frequently in illustrations: they're decorative in a stiff sort of way.

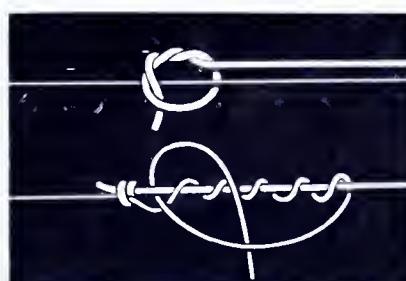
But they're much more than that. From bottom to top they have been found useful by man. For centuries in Eastern Europe the roots have been used for food. Their roots are rich in starch. The tender spring shoots have been prepared and eaten much like asparagus. The young flowering spikes have become soup and the new stems are cooked as greens. The abundant pollen during blossoming time has been used in bread making.

And that's not all. During World War I the silky down of cattails was used in dressing wounds. It has often been important in upholstering, for the ripe fruit hairs in the "tails" have properties similar to those of kapok. The tails were also used to make artificial silk and as a substitute for cotton, and the stems in paper making. And finally in certain areas of the world, the inflammable pollen serves for tinder.

But to the typical American angler, cattails mean nothing economical . . . just some pleasant local color for his angling outing: a place for marsh wrens and red-winged blackbirds to nest and for the long-legged, great blue heron to stalk frogs; a place for the wind to gossip softly in the long, slender leaves.—Carsten Ahrens

**Typha angustifolia* (narrow leaves).

Typha latifolia (broad leaves).



SHOCKER KNOT—When casting relatively heavy lures with light line, there is a marked advantage in having a short leader of heavier line—enough to absorb the initial strain of the cast. This "shock leader" should reach from the lure, through guides and tip-top, and a few turns about the reel. Here is the knot to do the job. Remember—draw each part up slowly and snugly.



IMPROVED CLINCH KNOT—Excellent for tying line to hooks, lures, or flies. Pass end of line through eye of hook or swivel. Make five turns around standing part of line. Pass end of line between eye and first loop, then back through big loop, as shown. Pull knot up tight—slowly. Cut off end of line, leaving perhaps $\frac{1}{4}$ " of end extending from knot.

STREAM NOTES

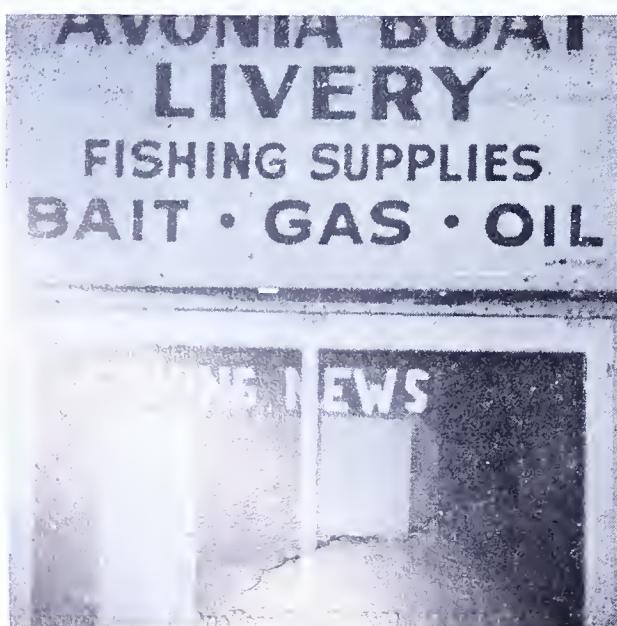
While on stream patrol during the early part of the current trout season I watched a man fishing or attempting to fish. He would make a cast, become tangled, lower his rod, then straighten out the tangled mess and cast again. I watched him repeat this several times, then offered my assistance. I discovered this fisherman was blind. Talking with him, looking over his tackle I found his casting trouble was caused by the swivel at the end of his line that kept coming through the top guide of his rod. His fishing partner then appeared, found an oversize bead which I attached to his line ahead of the swivel. When he made a cast and retrieved the line, the bead now stopped his reeling in at the tip of his rod and he knew he was ready for another cast. I wanted to see him catch a fish but he had no luck and I had to leave. He thanked me several times for my help but I just couldn't help thinking I was the one who should be thanking him for making my day a little brighter.
—District Warden Paul Antolosky (Centre).

#

A District Fish Warden was patrolling Elk Creek, Erie County, when he came upon a youthful fisherman of about 10 years. When the warden asked if he had any luck, the boy proudly produced a stringer of seven trout. While admiring the catch, the officer noticed a second stringer in the water with a 21-inch smallmouth bass on it. When the warden asked if the fish belonged to him, the boy replied. "Heck, no. . . . I've been here all morning and that big fish kept bothering my bait so I just tied him up for a while."—Special Fish Warden James F. Donahue.

#

James Valentine, Fairview, Pa., caught a 30-inch muskellunge in Lake LeBoeuf that had a clipped left pelvic fin. A check of the records indicated this fish had been stocked in September 1959 when about eight inches long.—District Warden Norman Ely (Erie).



FISHING NEWS bulletin is a feature at Avonia Boat Livery, Route 98 and Lake Erie. District Fish Warden James F. Donahue had the board put up to assist Pennsylvania Fish Commission news releases, news reports and notices of fish stockings and other angler news.

feature at Avonia Boat Livery, Route 98 and Lake Erie. District Fish Warden James F. Donahue had the board put up to assist Pennsylvania Fish Commission news releases, news reports and notices of fish stockings and other angler news.



DISTRICT WARDEN Walter J. Burkhart (Montgomery and Philadelphia), center, aids in awarding angling prizes to (left) Joe High, Flourtown, Pa., and right, Jeff Smith, Erdenheim, Pa., in a fishing contest sponsored by Explorer Scout Troop 237 of Flourtown. The boys took first and second honors respectively in action at Erdenheim School lake. Standing from left are: William Campbell, scout advisor; Enos M. Rich, fishing committee member, and James Cisco, chairman of the committee.

While patrolling Lyman Run Fly-Fishing Only Stream, Orman Dingman reported to me he had just caught a dandy. When I asked to see the fish he said he had killed it and threw it away. Then he informed me he had hooked a big water snake on a wet fly.—District Warden Kenneth Aley (Potter).

#

There were six muskies reported caught from Perkiomen Creek (Montgomery) the first three days of the season. Since the opening day a total of 12, ranging from 31½ to 40 inches and weighing up to 18 pounds, have been caught in the same area. The Commission stocked Lock Alsh Reservoir with trout for the first time this year. This water is about 7 or 8 acres and one of the hardest areas fished in this district. I have seen more parents taking their small children fishing than in past years and the archers are busily taking large numbers of carp.—District Warden Walter Burkhart (Montgomery and Philadelphia).

#

Regional Warden Supervisor Harold Corbin is receiving reports from the streams of his district of excellent eel fishing. The elver stocking program of the Fish Commission is already producing good eel fishing.

#

While patrolling the Raystown Branch of the Juniata River I met John Hargnett of Johnstown, Pa. He had taken the day off to fish, bringing with him bacon and eggs for lunch. When about to cook up a batch he found he had forgotten the skillet. Perplexed, but only for a moment, he removed one of the hub caps from his car, washed it in the stream, then cooked and scrambled the eggs in the hub cap.—District Warden William McIlhenny (Bedford).



DISTRICT WARDEN Frederick Ohlsen interviewed by sports-caster Bob Gouldner on TV at the Blue Ridge Broadcasters, Inc., studio. Ohlsen has, on several occasions appeared on the PTVC network in cooperation with televised conservation programs.

At Raccoon Park in Beaver County, about 30 boys attend the Youth Forestry Camp located there. This group assisted in reclaiming Raccoon Park Lake and in the stocking. Currently they are busy with a stream improvement project on Traverse Creek. The sportsmen's clubs of Beaver County have furnished a speaker or outdoor movies weekly and buying fishing licenses for as many boys as they can. The camp is under the direction of Thornton Walker.—**District Warden Clifton Iman** (Butler and Beaver).

#

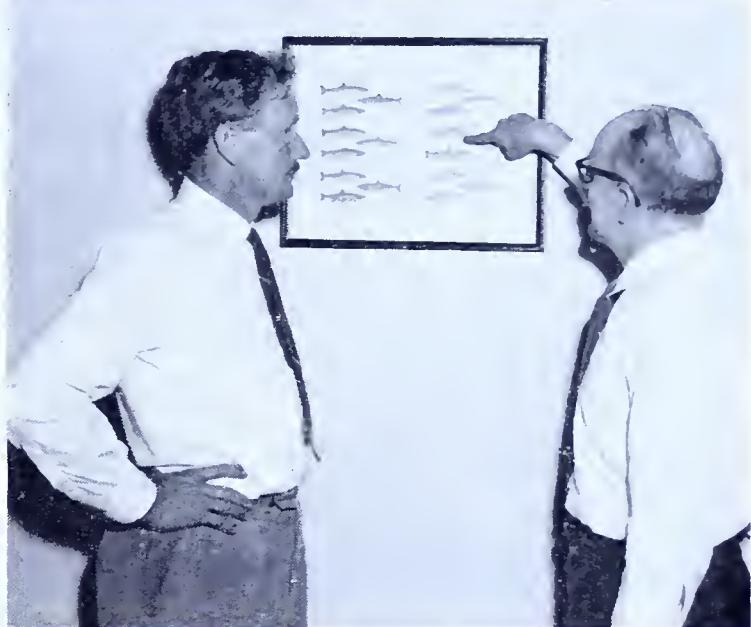
A Bellefonte hatchery truck driver noticed a car following him along a long way. He stopped for lunch and the driver of the trailing car also stopped, sat beside him for lunch. This gentleman got around to asking the truck driver where he was headed with his load of fish. Warren County . . . was the reply. Pumping the driver further, the seeker after knowledge wanted to know if he had some nice fish on this shipment. When he was told he had a load of fingerlings the hatchery truck driver promptly lost a Buddy.—**District Warden Kenneth Corey** (Warren).

#

Albert Kellogg, Youngstown, Ohio, told **District Warden Raymond Hoover** (Crawford), while fishing Pymatuning Lake, he left a minnow bucket, top open, within 25 feet from where he was fishing. He observed a blackbird flitting about, saw it fly away with something in its mouth. The bird shortly returned and watching it closely, it perched on the edge of his minnow pail, dipped in, took a minnow and flew off. Mr. Kellogg moved the bucket closer to his fishing post and this ended the thievery.

Little Willie was asked if he ever studied the Bible.
"Yes, sir," he replied.
"Then of course you have read the parables?"
"Yes, sir," said Willie.
"Good," said the teacher. "And will you tell me which parable you like best?"
"I like the one where everybody loaf and fishes."

New Zealander Visits Commission



—Pennsylvania Game Commission photo by George H. Harrison

DUNCAN MACINTYRE, member of Parliament of New Zealand, recently visited the Harrisburg offices of the Pennsylvania Fish Commission in connection with a study being made by his government of fish cultural procedures in the United States. Dr. Albert Hazzard, Assistant Executive Director of the Commission, who directed Mr. MacIntyre on a tour of Pennsylvania hatchery installations, points out one of the hybrid trout produced at the Commission's Benner Spring Fish Research Station, Bellefonte.



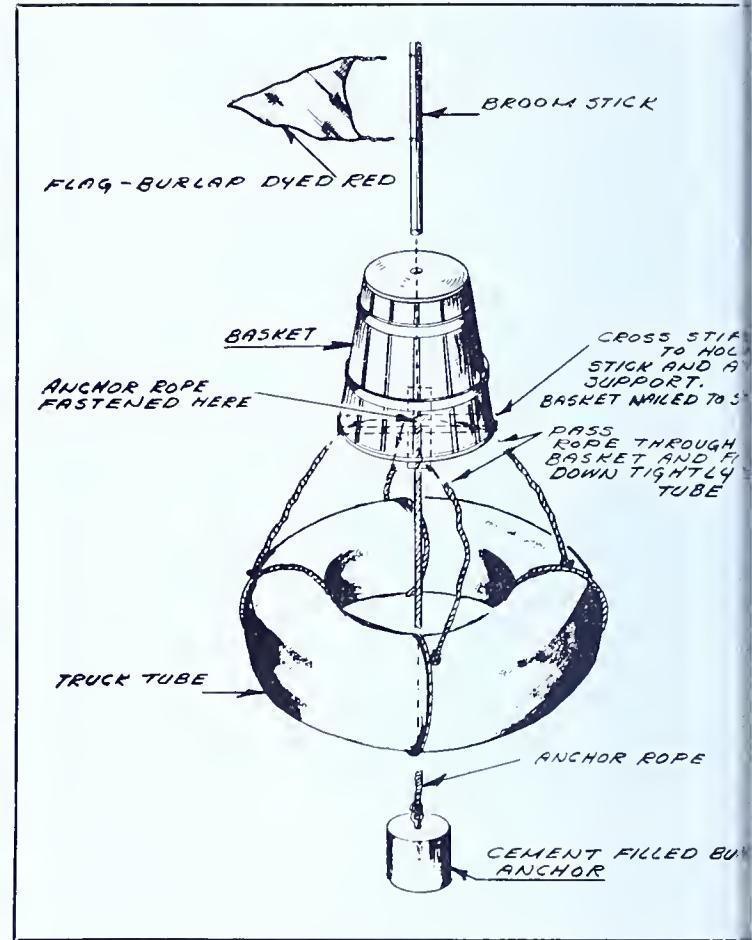
Photo by the Potter Enterprise

AT SPRING PRESS PARTY, left to right: Mrs. Marie Behney, Ed Keenan, President, Outdoor Writers Association of America, Bill Walsh and Will Johns, President, Pennsylvania Outdoor Writers Association. Walsh was chairman of the two-day Erie event sponsored recently by the Erie Chamber of Commerce. Fishing jaunts on the lake were included in the program and here Will Johns is recommending a "taker."

It might be just as offensive to be around a man who never changes his mind as one who never changes his clothes.



BUOY IN ACTION, it helps fishermen and boaters avoid the numerous obstacles and dangerous rocks especially in the Susquehanna River areas.



MATERIALS for the buoy include: Inner tube, bushel basket, broomstick, rope, pieces of wood and a bucket filled with hardened cement.

Tackle Tips

BUILD A BUOY

By DON SHINER

ONE day late last summer, two of us hauled our gear to the boat landing, climbed into the waiting craft and headed upstream in the wind whipped Susquehanna for a day of small-mouth bass fishing. The outboard was cold and reluctant to run smoothly. We coaxed it along for 50 yards, then wham! the prop struck a huge hidden boulder and sheared the pin. Those who have tried to change a shear pin in a rocking boat know what it is no simple task! Oddly, this was not the first time we had hit this particular rock. On at least two other occasions in the past, the same situation occurred under similar circumstances. The choppy waves obscured the rocky shoal, making it impossible to accurately judge its location. The following day we set here a channel buoy for all motor boaters to avoid the hazard.

Buoys are useful aids for marking deep channels, shallow reefs or hazards to boating. In fact, small buoys are handy not only for keeping track of good fishing spots. They also serve as markers to help locate the boat dock at night or during foggy weather. The buoy can be simply a gallon-size tin can roped on and anchored securely with a heavy rock. Frequently

one encounters a gallon-size glass jug fixed in much the same manner. The tin can is preferable. Should the glass bottle be struck by a rock or a boat, jagged pieces of glass are scattered on the stream bottom to offer hazards to swimmers and wading fishermen alike.

I like the buoy used in the Berwick region of the Susquehanna River, fashioned without elaborate materials from a bushel basket, truck tire inner tube, several pieces of wood and rope. Whoever designed this particular marker did an outstanding job with a minimum of materials.

As the accompanying drawing shows, the basket is inverted and roped to the large inner tube. A broomstick and flag are inserted through the bottom into the basket stiffener. The buoy is then moored with a bucket filled with hardened cement.

This buoy will stay afloat for months without adjustment and, in most cases, it will last the entire season. The bobbing basket, coupled to a large red burlap flag, captures the attention of every passing boater. It is an immediate warning to be on the alert for some sunken obstacle. Several can be built from these inexpensive materials within a few hours.

Bow Angling

By H. R. WAMBOLD

GETTING an eight- to ten-pound carp on the end of a fish line, at the fishing arrow end, will take no second place in angling action! Cuts in my hand from the fishing line will verify this fact.

The sport offers many variations for recreational pastime, plus a few problems which can easily be mastered. All in all this is a new approach to added fun on stream or lake.

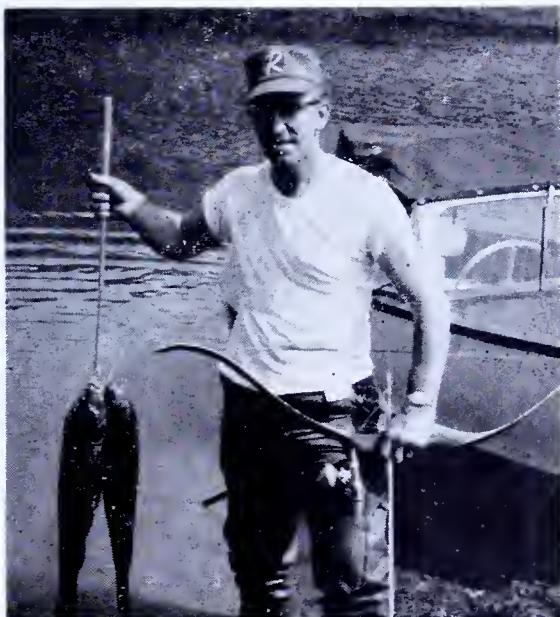
Types of Heads and Arrows

Among the items necessary to the tackle of the bow-angler, the fishing arrow is a mighty important one. This is the harpoon or means of hooking the fish, requiring no bait, but instead, the steady aim of the archer.

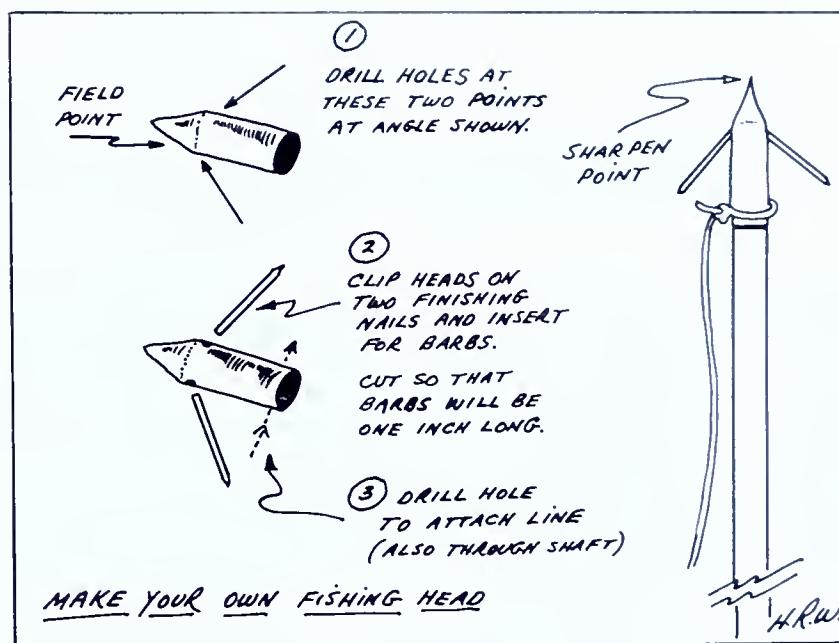
The most acceptable arrow used today is the solid glass type. Choice of use with or without the rubber fletching is optional. I find the line keeps the shaft in fairly true line of flight, so don't bother with the rubber vanes. The solid glass arrow offers such features as: weight to go deeper in the water, strength to withstand rough action of the carp, and the ability to withstand water without warpage or absorption.

The line hole is found just ahead of the nock, through which the line is threaded and then attached to the head on the pile end of the shaft. This permits the fishing head to pull off the end of the shaft when in the fish, and allows the shaft to hang free on the line and out of the way.

Getting to the business end of the arrow we find the choice of fishing head as confusing as the proper hunting heads among archers. One man swears by this design, another tells you his is the best, etc.



BOW ANGLING took these 15-pound carp (one a mirror carp) in the North Branch of the Susquehanna River. Bob Shabbick, brother of District Warden Stephen Shabbick (Wyoming), used a Bear Bow with a Great Lakes Holiday 98 spinning reel attached with 30-lb. test mono line. Arrows must be kept sharp, for river rocks make them dull when hit. An aluminum gaff also comes in very handy, saves many arrows. A strong bow is necessary, for carp have surprisingly tough hides and at times arrows merely bounce off these fish.



A fishing head should provide several features, such as: proper barbs to hold in the soft flesh of the fish, good point design to permit penetration through the scaly outer shell of the carp, and a means of withdrawing the head out of the fish without the messy job of cutting.

Of the later designs found available today, the problem of getting the head out of the fish is solved in the following manner . . . tip design which is threaded into the ferrule part, and is removed by un-screwing. The barbs are attached to the removable portion, and when un-screwed from the ferrule body will allow pulling the back section out of the fish. The tip is then screwed back in and the head put back on the arrow, ready for the next shot.

Another design incorporates a spring action dividing the part of the head between the ferrule and the tip. The barbs are found in the solid part between the two sections. When the tip is screwed against the ferrule it locks the barbs into proper angle for shooting. After the carp is landed and withdrawal of the arrow is desired, the tip is screwed forward which allows the barbs to reverse. Pulling the arrow out of the carp is then an easy job. This type head works best if cemented or pinned to the arrow permanently.

Some heads feature one barb, while others have two. Either design will do the job, again a matter of individual choice in most cases. A fishing head can be made from a field point by drilling holes of proper size at the right angle, just at the end of the tapered shoulder of the point. Then take two finishing nails and clip the heads and insert into the holes. Allow about one inch barb length to protrude, and drill another hole to attach your line.

Billy Jones Lands Rare Fish

Billy Jones, 5-year-old son of Mr. and Mrs. Jack R. Jones, of Metuchen, N. J., had quite a bit of luck recently fishing the farm pond owned by Mr. and Mrs. William Schuster, of East Lemon. While his parents visited the Schusters, Billy fastened a strip of bacon to his hook and threw it into the pond. Almost immediately he felt a tug on his line and he proceeded to reel in the first catch of its kind in those waters . . . a Pomeranian dog. Billy managed to remove the hook from the lip of the Schusters' pet without damage. There is no verification whatsoever that Billy threw back his catch.

Catches



Scranton Times photo

WHOPPER LAKE TROUT caught at Crystal Lake recently by George Nolc. The fish measured 29 inches and weighed 20 pounds. Nolc said he caught the fish trolling in 60 feet of water with a Christmas tree lure. Nolc took a 25-pound fish in the lake several years ago.



THE PROUD GENTLEMAN is 14-year-old Fred Dean who caught this 22-inch, 7 1/2-pound brown trout on April 21 in Meadow Run, near Chippewa in Fayette County.



Photo by the Ambler Gazette

JACK ESCHENMANN, Shippensburg, Pa., caught this fine 30-inch brown trout in Big Spring, Newville, last season that weighed 9 pounds, 4 ounces. The trout which hit a streamer fly took third prize in the fly-fishing class, Field and Stream contest.

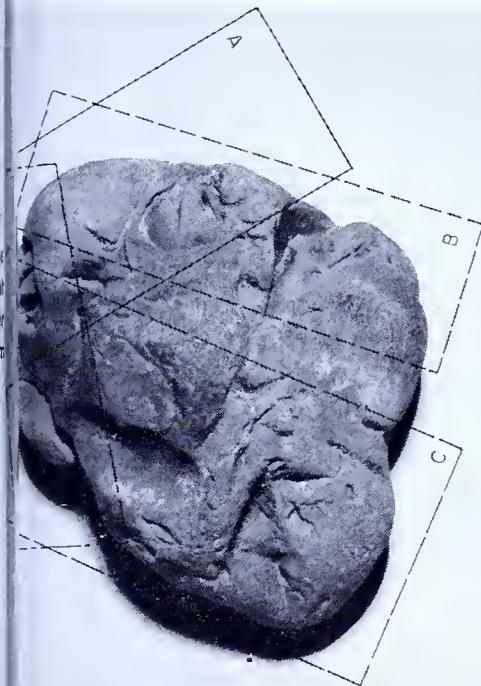


THIS MUSKY took a five-inch chub fished by John N. Krodel, Middletown, R. D., Pa. The 37-inch fish was caught in the Susquehanna River between Falmouth and York Haven in '61.



ALLEGHENY RIVER BROWNIE was landed after a tough fight by Terry Blow, a few hundred yards below his Colesburg, Pa., home. A brass spinner fooled the 24-inch, 4-lb. fish and astonished the former Navy veteran.

A PEBBLE WITH PERSONALITY . . . This small stone, about the size of your fist, is just an ordinary fossil stone. But if you look very closely you suddenly find a lot of human faces shaped in the crevices and bulges of the stone. Not merely a single face but four are clearly outlined. Maybe the faces resemble Fred Flintstone, maybe a medieval gargoyle or a fisherman who lives near you. It all depends upon your own imagination. Next time you get outdoors, watch your step . . . the very stones underfoot may be **LOOKING UP AT YOU!** —Photos by Don Shiner



STONE OF MANY FACES. Match close-up views with the corresponding areas marked on this picture.



AREA "A" suggests a face of man growling because a leaping trout just tossed the hook!



AREA "B" suggests a veteran angler who developed a flat nose from pressing hard on the boat dock to watch the fish swim around the posts.



AREA "C" suggests "grandpa" who lost teeth while biting split shot to his line.



AREA "D" suggests Snow White's dwarf, "Grumpy," or is it a face of an elephant?



THE FOSSIL STONE of many faces

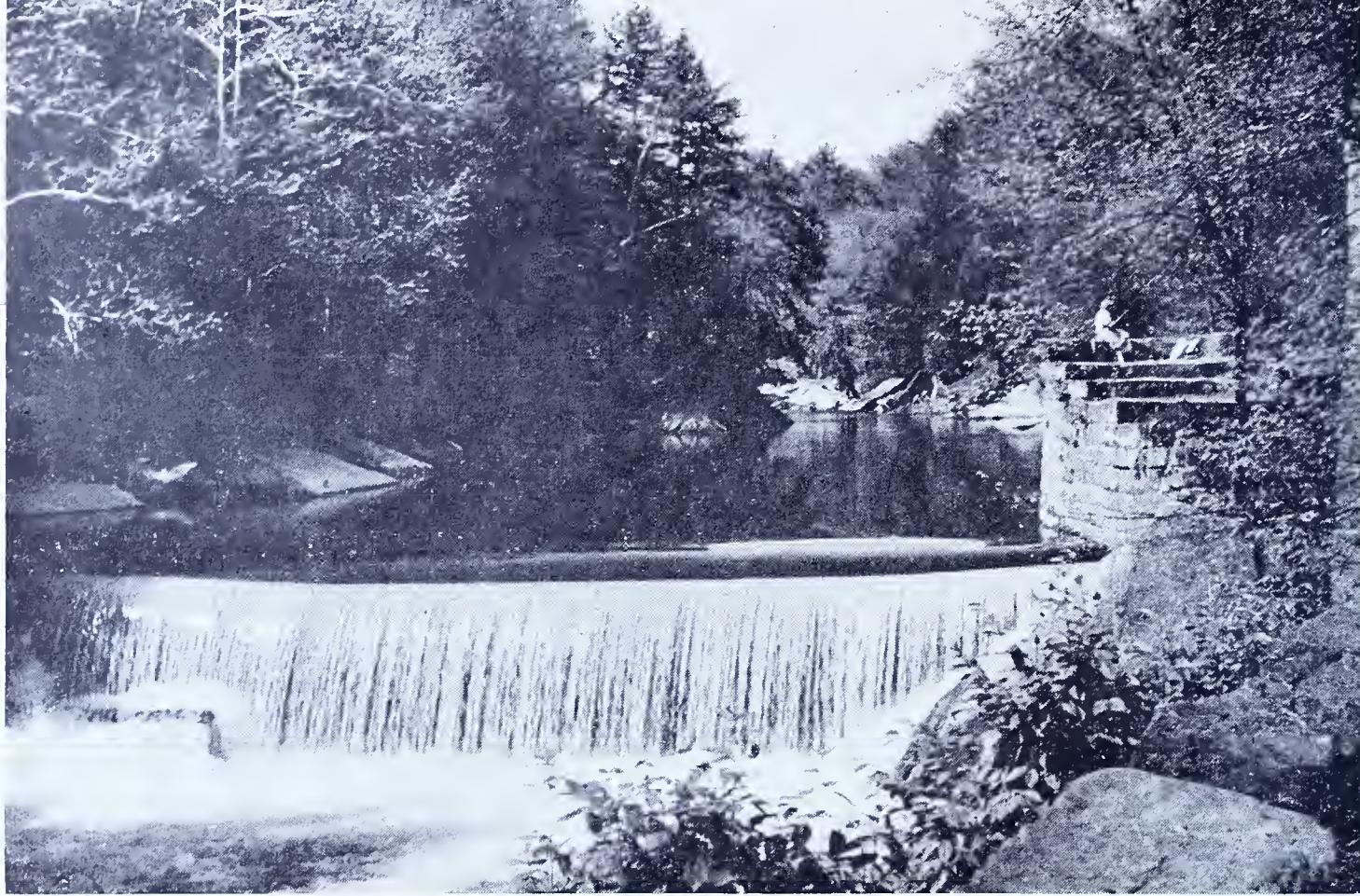


Photo by Anna J. Irons,
Bellevue, Pittsburgh, Pa.

This famous old mill dam on Slippery Rock Creek in McConnells Mill State Park, Lawrence County, is a beautiful "Mecca" for all outdoor folks. Located near the intersection of U. S. 422 and U. S. 19 between Butler and Newcastle, McConnells Mill State Park preserves this magnificent gorge created by the last glacier during the Ice Age. A natural area for hiking and picnicking.

OUTDOOR CAMERA FANS! . . . we'd like to print your "Picture-of-the-Month," giving you a byline and sending it around the world with the PENNSYLVANIA ANGLER. Send us your 5 x 7 or 8 x 10 glossy (black and white only) prints of any outdoor subject relative to fishing, boating, stream life, scenic waterscapes including the beautiful, the odd and the unusual. Prints should include on the back: Information on where taken, when, plus other data useful for identification. All reasonable care will be taken in handling, returning those we do not select. Copies of the ANGLER issue in which your "Picture-of-the-Month" appears will be sent to you. Send all prints to the Editor, PENNSYLVANIA ANGLER, Pennsylvania Fish Commission, Harrisburg, Pa.



-----CLIP HERE FOR **46-MAP BASS SEASON SPECIAL**-----

Immediately postage-paid THE BASS SEASON MAPS SPECIAL
Enclosed is \$5.20 (includes Pa. Sales Tax)

To: _____

Make check or money order payable to the Pennsylvania
Fish Commission

Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

Bass Season Special!



Pennsylvania Waters-Highway Maps... All Counties Except Phila.

46 - MAPS - 46

FOR ONLY

FULL SET

\$5.00

FULL SET

Plus 4 per cent Pa. Sales Tax... We Pay the Postage

If purchased singly the set costs you \$18.95

You save \$13.95 with this offer!

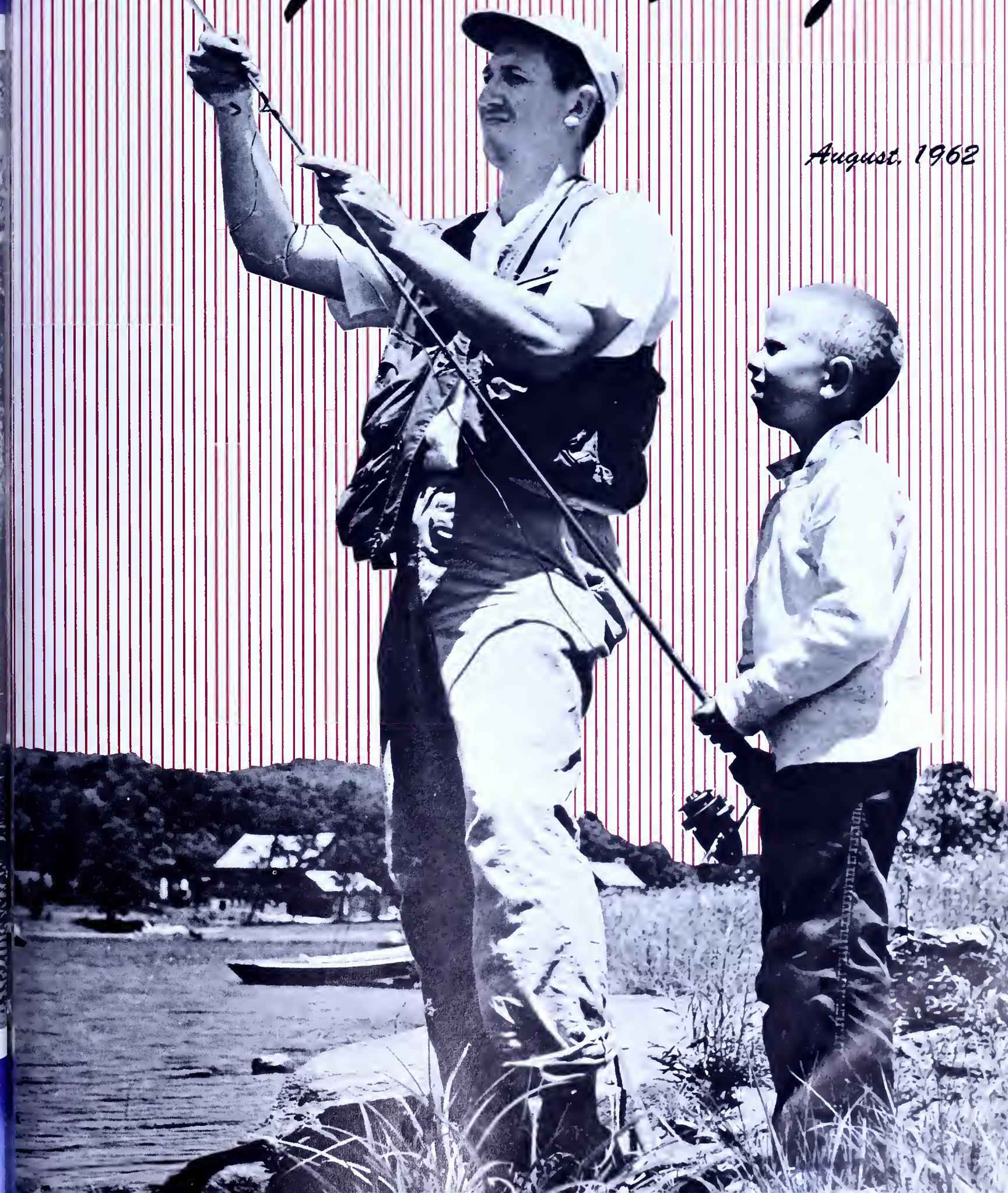
Send Bass Season Map SPECIAL ORDER BLANK on Page 24 opposite.



AUG 14 1962

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION

Pennsylvania Angler



August, 1962



Conservation is like a garment . . . when it is dirty, we clean it up; when it is ragged, we must patch it; but we must keep it as long as we can.—Editor.

1.6
C.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director
DR. ALBERT S. HAZZARD
Asst. Director
WARREN W. SINGER
Assistant to Executive Director
PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief
Fish Culture
HOWARD L. FOX Superintendent
Real Estate and Engineering
CYRIL G. REGAN Chief
EDWARD MILLER Asst. Chief
Law Enforcement
WILLIAM W. BRITTON Chief
Conservation Education-Public Relations
RUSSELL S. ORR Chief



NORTHWEST REGION

J. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724
TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162
DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355
CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the
PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

MAYNARD BOGART, President Danville
JOSEPH M. CRITCHFIELD, Vice President Confluence
GERARD J. ADAMS Hawley
WALLACE C. DEAN Meadville
JOHN W. GRENOBLE Carlisle
ALBERT R. HINKLE, JR. Clearfield
R. STANLEY SMITH Waynesburg
RAYMOND M. WILLIAMS East Bangor

AUGUST, 1962

VOL. 31, NO. 8



GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 LATE REPORT ON THE SUSQUEHANNA SHAD STUDY—Albert M. Day, Executive Director, Pennsylvania Fish Commission
- 4 PEOPLE WHO ACT LIKE PIGS—Wilbert N. Savage
- 8 HOW TO STAY DRY WHEN RAIN HITS CAMP
- 10 WATER SKIING "HOW TO'S" FOR BEGINNERS
- 12 THE PINCHOT PARK LAKE STORY—Johnny Nicklas
- 14 BOATING IN PENNSYLVANIA
- 16 HATCHING SHAD EGGS
- 17 COMMISSION OFFICERS ELECTED
- 18 LIGHTNING STRIKES MORE THAN ONCE—Keen Buss, Fishery Biologist, Pennsylvania Fish Commission
- 18 THE SPRING HOUSE—Albert G. Shimmel
- 18 THE FEMININE ANGLE—Marion Lively
- 19 NEVER BET ON CARP—Jim Hayes
- 19 OUTDOOR BOOKS
- 20 STREAM NOTES
- 21 MEET YOUR COMMISSIONERS
- 22 A FLY ROD TADPOLE FOR BASS—Chauncey K. Lively
- 23 YOUTH OUTDOORS

Cover—Angling Action at Pinchot State Park Lake
By Johnny Nicklas

Cover 2—Midsummer Contemplation
By Don Shiner

Back Cover—Allegheny River at Wildwood camping area looking east toward Route 62 about eight miles above Tidioute, Pa. The Allegheny runs parallel to Route 62 for more than 60 miles from Oil City north to Warren, Pa.

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission, DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

A Late Report on the SUSQUEHANNA SHAD STUDY

By **ALBERT M. DAY**
Executive Director

I witnessed a thrilling sight while on the West Coast attending the National Izaak Walton League Convention in Portland, Ore. I spent two days reviewing the fish passage study being conducted by Milo Bell and Harlan Holmes at Bonneville Dam on the Columbia.

I saw thousands of American shad enter the big fishways which each year transport many thousands of salmon, steelhead, shad and other fishes from the lower river level around the power dam to the forebay some 60 feet above. I stood alongside the pools of rushing waters coming down the fishways and saw milling thousands of shad and salmon fighting their way up and across the counting board which rests at the upper end of the ladder. Some 600 to 1,000 shad are going over the device every day, tallied and recorded by the expert observers who spend eight hours a day checking the various species of fish that swim past them. Last year approximately 250,000 shad were counted through the station.

About two years ago the Pennsylvania Fish Commission contracted with this internationally known team of experts to conduct a study to see whether it might be feasible to construct similar fishways at Conowingo, Holtwood and Safe Harbor Dams on the Susquehanna. They have been working on the project continuously since that time and much has been learned.

They are now finalizing their report. We plan to have them deliver it personally to the members of the Fish Commission and to discuss the details of their research. This information will then be presented to the public.

While on the West Coast I visited the facilities where they have been conducting their observations on the movements of shad. Holmes and I visited the holding pond on Tanner Creek which is a part of the fish hatchery operated by the State of Oregon Fish Commission just below Bonneville Dam. This is a pool about one-half acre in size with a crystal clear stream of water running through it. It is an ideal spot for observing fish in quite natural environment.

Last year 200 shad were captured in the fish ladders of the Bonneville Dam, transplanted to the Tanner Creek pond and kept under constant observation by Harlan Holmes, Ivan Donaldson, the fishery biologist for the Corps of Engineers at the Bonneville project, and personnel of the Oregon Fish Commission at the nearby hatchery.

Much new information was obtained about shad

habits. They found that these fish travel in schools, closely bunched together. They learned that single individuals alone seem to panic and do not act in a normal fashion. They found that shad are almost constantly on the move instead of lying quietly at rest for considerable periods of time as salmon, steelhead and trout do.

This school of 200 shad was kept in the pool about four months during these studies. A few spawned and the eggs were taken and successfully hatched at the Bonneville Hatchery.

It was learned that shad fear square corners. When placed in a tank with such corners, they battered themselves against them. When placed in a circular tank, they swam peaceably around and around.

It was found that they can be anaesthetized for easy handling and that they will withstand long hauls in tank trucks under proper conditions of temperature and aeration.

These observations may seem simple and unimportant. In reality they are of great significance in both the design of fishways on the Susquehanna and transplanting, should shad be transported upriver to establish new spawning populations.

Another significant finding of last year's study was conclusive proof that shad spawn above both Bonneville Dam 180 miles upstream from the mouth of the Columbia and above the Dalles Dam another 45 miles upriver. Last year myriads of young shad moved down through and over both of these dams. Holmes and Donaldson actually captured several hundred yearlings in one of the experimental devices at the Bonneville structure. We have proof positive that on the Columbia shad are moving both upward and seaward at two of the major hydro-electric installations.

Biological observations are continuing at the present time. Last year's studies showed basic patterns of movement. This year's study is designed to learn more of the preferences of shad in negotiating the various steps on the fish ladders themselves. Individual pools are created by stop logs some 20 feet apart which create a series of small waterfalls reaching from the top of the ladder to the river level below. Salmon normally prefer going through orifices under the water surface, although many do fight their way over the top. There is uncertainty as to the preference of shad.

Bell and Holmes have designed a rather unique experiment to gather information on this question. One



BONNEVILLE EXPERIMENTAL LABORATORY showing ladders, lights and other laboratory equipment where Bell and Holmes studied shad seeking to solve the fishway problem in the Susquehanna River Dams, the study now nearing completion.

set of stop logs will be placed in the fishway with orifices or holes underneath the water surface. Another set farther down the fishway will have no underwater provisions. Thus, at one point the fish will pass upward at a submerged level while at the other they will be forced to go over the obstruction by swimming on the surface. A set of expert counters will observe each operation. Platforms are being built in the fish ladder proper and suspended near the water surface for better visibility. The women who do the counting will observe the passage of fish at each point during eight-hour shifts each day. Incidentally, to overcome the broiling sun, Holmes is providing beach umbrellas for the ladies. The counts at these two points will then be correlated with the final tally at the exit from the ladder into the forebay at the top of the fishway. The lady fish counters at Bonneville Dam have stumped the "What's My Line?" television experts on several different occasions.

An interesting thing about this study is the excellent cooperation that the Pennsylvania Fish Commission and its consultants are receiving from all parties in this study. The Corps of Engineers, all of the state agencies and the general public in the lower Columbia River area are keenly interested and are contributing time and equipment without cost to us.

Bonneville presents the greatest opportunity for fishery studies of any place in the United States. When the dam was originally constructed some 7 million dollars worth of fish passage facilities were included. Standard ladders, traps and lifts and special downstream migrant facilities were provided.

Nearby on the Clackamas River, the Portland General Electric Company has constructed fish passage facilities which includes the world's highest and second longest fish ladder, an artificial outlet for downstream migrants and a five-mile long aerated pipeline to bypass ocean-bound fingerlings around the company's three Clackamas River power dams. This company has spent 3½ million dollars constructing fishery facilities which actually are the most extensive and imaginative research tools ever made available to fishery biologists. All of these facilities are available for this study by Bell and Holmes without cost to Pennsylvania.

Another interesting thing about this study is the fact that on the Columbia we are working with the same shad that we have on the Susquehanna, the Delaware and the Hudson. Back in 1871 one Seth Greene managed to transport 12,000 shad fry from the Hudson River below Albany, N. Y., to the Sacramento River in California. Those fish have multiplied and spread their progeny from San Francisco Bay northward and were the forebears of the 250,000 shad which went over Bonneville last year.

Mr. Bell in a recent interim report tells us "from structural and operational standpoints, fishway systems are practical." If our Susquehanna shad react as I saw their distant cousins behave at the fishways at Bonneville, there is no doubt that fishways here will be biologically feasible. The big question mark in this whole undertaking is the price tag. This we do not have as yet. That important element remains to be determined.



THE SLOBS who left this mess on one of our public park sites are commonly called "Litterbugs." Perhaps not quite so refined . . . the term "SLOBS" is far more appropriate.

Let's Look Once Again at the Shamefully Unsavory Outdoor Habits of Those Who Destroy, Deface, and in General Characterize . . .

PEOPLE Who Act Like PIGS!

By WILBERT NATHAN SAVAGE

"Human nature," said the old-timer as he reeled in a rotted automobile tire, "is a powerful peculiar thing. A body'd think people'd find some'ers else to toss such truck 'sides in a trout stream!"

Flawless as the aged angler's reasoning certainly was, our streams and lakes and their immediate environs continue to serve in too many cases as dumping sites for just about anything from a tattered mattress to minute but deadly slivers of broken glass. And, cashing in on this modern-day continuation of deplorable behavior, cartoonists still draw and sell to outdoor publi-

cations the old reliable and presently fitting standbys depicting enraged or exasperated fishermen hauling in catchy and sometimes suggestive articles of trash.

But while the cartoonist cashes checks for having graphically poked fun at such occurrences, there actually is a dearth of humor in the situation's real-life dimension. For the untidy habits of the careless few most certainly stir in the multitude an active flame of indignant wrath, and a firm determination to support any move calculated to hasten a day of reckoning for troublesome spoilers. (And it seems that an active

crop of these "hooray-for-me-to-hell-with-you" individuals is always with us!)

This may or may not come as a surprise, but several thorough regional surveys once indicated that while a man may keep a neat lawn, orderly garage, and store his fishing gear in the best tradition, he occasionally (*reason unknown!*) thinks nothing of throwing a bag of litter along a highway, or leaving it to molder on the bank of a respectable trout stream!

And a still more extensive record of observations recently proved this fact: *litter is catching*. That is, people generally refrain from littering a perfectly clean park. But if one person throws down litter, the next party is apt to think, "Oh, it doesn't matter; there's some already here"—and plop! goes his bag of squashy litter on the ground. The whole thing begins to "snowball" in a strangely contagious kind of way, and soon the entire recreational space becomes a virtual city dump!

But to put the real thrust of concern into the litter problem, it is absolutely wearisome to note that if the unsightly dumps aren't actually in the water's edge, they are all too often within high-water reach of the watercourse. And, in far too many instances, a litter heap may threaten a stream already imperiled by the encroachment of other befouling substances. Litter very often contains quick-to-decay matter, and seepage or high-volume runoff from such messes can only be tagged as INJURIOUS to any stream—particularly

when the refuse is rat and fly infested, which it often is!

Alas, anxious sportsman!—there is yet another very serious side to the improper disposal of litter. For besides being a menace to streams and property values, ill-placed rubbish often leads to a genuinely hazardous situation involving direct injuries to the public. This aspect of the evil was highlighted in a blistering article in a national labor publication in 1961. The story told of a group of small children jumping on what appeared to be an inviting mound of pure beach sand, but which instead turned out to be a pile of broken glass (dumped within eleven feet of a well-marked trash container!) barely covered with a thin coat of sand. The result was that the children had to be treated at a hospital and also had to receive anti-tetanus shots. The foot of one nine-year-old girl required ten stitches. Of course the sanity of those responsible for fashioning such booby-traps is likely to be questioned in any circle, but this doesn't alter the fact that such things *do happen too often!* And it's practically an everyday happening for swimmers to sustain painful injuries when they step on glass, sharp metal, and other harmful objects that have thoughtlessly been tossed into the water.

In seeking out all the pernicious facets of the litter curse, we finally come to ponder one challenging and profound fact: the wretched condition—national, state, or regional; along streams, highways, or in parks—needn't exist at all. Adult people with grown-up minds surely must know it is unfair and unsportsmanlike to

FISHERMAN'S PARADISE? . . . More like a "Junkies' Heaven" when vicious, thoughtless people throw worn-out things along our streams.



JUNCTION



THE GUNGOONS have been along here recently and they couldn't care less how much of the taxpayer's money goes into highway sign replacements.

disfigure landscapes, byways and streamsides with assorted waste. And do they not know that violation of every rule attached to outdoor etiquette brings on incensed attitudes of scorn from the "camp of the clean!"

For anyone willing to improve his outdoor manners, a little thoughtfulness and effort to properly dispose of litter will always yield a worthwhile payoff in the strengthening of personal pride, peace of conscience, and a salute of high regard from responsible fellow men. A well-known Pennsylvania newscaster put it this way: "Your rewards in life will always be in direct proportion to your contributions."

But for those too stubbornly fixed in their ways to refrain from bad deportment in the great open spaces, an instrument of persuasion has been set up in most states. In Pennsylvania you can be relieved of \$100 for daring to be a bit too daring with a spread-the-trash crusade. (Some people actually seem to have a mania for this sort of thing and will practice it religiously in the face of even an impending arrest!) If you happen to stray across the line into Maryland, the penalty for your littering iniquities will be no less than \$250. And in Virginia a small bag of litter casually heaved out your car window can cost you a fat \$500! (The author and his wife have made three trips into Virginia since 1960, and take it from us the roads we traveled and the parks we visited were CLEAN!)

In a more gentle attempt to encourage offending motorists to show greater neatness in their treatment of highways and public recreational facilities, hundreds of organizations have aimed programs by the score at those responsible for the widespread litter problem.

Many oil companies supply auto litter bags; several trucking associations have taken up the cudgel against highway litter; and banks, department stores, builders, manufacturers, fraternal organizations, and other purposeful groups have frequently united in drives against refuse accumulations in the wrong places. Labor unions also have joined in the battle; and there is a national nonprofit organization known as Keep America Beautiful (99 Park Avenue, New York 16, N. Y.) which was formed in 1953 to fight the national litter menace—and Pennsylvania regrettably has provided a number of sore-spot targets for the anti-litter marksmen!

Public service TV film clips, radio announcements, and press pleas frequently point out the senselessness of our costly litter headache (it costs fifty million dollars a year to clean up our national highway litter alone!); and slogans by the dozen pop up to remind us *not to miss* the trash containers conveniently provided for refuse in most public gathering places. Some of the better slogans include: "Annie Doesn't Litter Any More"—"It's Courteous to Be Clean"—"The Difference Between Litterbags and Litterbugs Is 'U,'" etc. And let's not forget the church which did a novel job of focusing attention on the anti-litter movement when this sign appeared on its premises: "Thou Shalt Not Dump Here!" There is indeed no scarcity of people willing to teach ways and means of preventing continuation of the present pace in litter scattering, but indications are that there is a lamentable shortage of pupils eager to learn!

There is another unexplainable brand of humanity who may or may not be litterbugs. This set is simply out to whittle, engrave, chisel or carve anything in sight. With gusto they attack bridge railings, trees, buildings, benches, rocks, and even the inside of caves—the latter being the most suitable place for such conduct. They possess a fierce urge to inscribe names, initials, and crude caricatures wherever a suitable surface is discovered. Sometimes they get real funny. Examples: "Cal Chokum From Shamokin," and "The Cave Woman," which appeared near "The Ghost of Valley Forge." What these nitwits need of course is to be denied their Barlows on a parole basis, and to have their fingernails trimmed extra close before being allowed to run at large!

Then, naturally, we have the diggers and the uprooters. They work at taking up wild shrubs and plants for the purpose of transplantation at home. These jokers aren't particular where they get their evergreens, honeysuckle, rhododendron, etc. State lands will do; so will Federal acreage, or even private property. Actually, most of the stuff they dig up dies within a week or two, but this doesn't seem to deter them from further illegal searches for wild ornamental growths that could easily cost them some real dough in heavy fines!

Couple all this with the acts of the warped demolition boys and it isn't difficult to comprehend that the great out-of-doors is steadily being subjected to a real beating at the hands of *Homo sapiens* "odd-niks." These are the mischief-makers who smash and mutilate



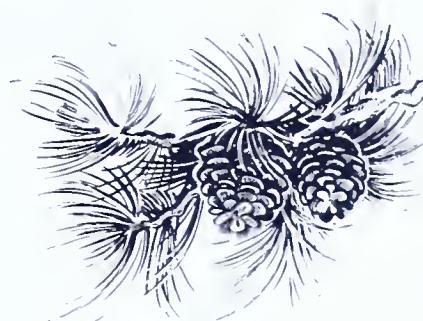
THE DESTROYERS just left here but nobody apprehended them. Maybe somebody with an allergy to picnic tables who needs help?

tables, benches, garbage cans, comfort stations, entrance barriers, fences, water fountains, shelters, etc. They also use firearms to blast away at signs and posters, trees and even mail boxes. They take a fiendish delight in turning direction markers until they're utterly meaningless; they have been known to riddle boats with bullets, break pumps, wreck concession stands closed for the season, and demolish park cooking facilities.

Just what kind of deadly undercurrent motivates such depraved outbursts of skulking behavior certainly calls for a better sense of indulgent understanding than many of us possess. Most assuredly we cannot forever take lightly periodic rampages that callously mangle and destroy. Whether the offenders need psychiatric care or that reliable old deterrent known as stiff fines and imprisonment is not for the author to determine. But certainly some firm and effective method of control should be instituted in a crack-down pledge that would deal more severely with the furtive few who seasonally purvey grievous ruin and sadistic destruction in places meant for pleasure and relaxation for everyone.



THE CARVERS have been busy here cutting the throat of a defenseless tree. . . . "Pete Loves Pat" and "Kilroy Was Here" are symbols of decadent minds.



THE DUMPERS simply brush the waste food, paper and junk off the table down the bank into the little stream. A "No Dumping Allowed" sign leans crazily among the piles of cooking grease and tin cans.

HOW TO STAY DRY WHEN RAIN HITS CAMP

CAMPING CAN BE FUN, but it takes planning and forethought. No camper wants rain to spoil his trip, but if it comes . . . be ready!



This summer, 16 million Americans will shed the warm security of their homes to try life out of doors, and it is safe to say that almost all of them will experience the tragicomic effect of being soaked by a sudden dunking in a mountain creek, a summer squall, or early morning dew. The circumstances may vary, but the end result is the same—wet clothes and possibly wet equipment, too.

Minimizing the effects of being wet, or even better, learning what to do to avoid getting caught in the first place, can be mastered, although it may appear that fate has the upper hand when the first shower sends you running for shelter.

Suggestion No. 1 is to minimize surprise by keeping a close watch on the weather. Learn to recognize the difference between a frontal storm and the local air mass thunderstorm. One comes on slowly via a gradually darkening sky and may not lead to rain at all. The other is isolated, in effect, and may deal its kind of furious destruction while the surrounding sky is sunny and clear. The first requires a place of relative comfort where the camper can wait for several hours while the sky clears. The second sometimes can be dodged altogether by watching for the dark, diagonal patch in the sky below the thunderhead which indicates the area of precipitation. Air mass thunderstorms can be spotted by a characteristic anvil-shaped cloud at the top and a roll cloud at the bottom-rear. This is the trouble area. When it heads your way, watch out!

Suggestion No. 2 is to choose your camp site carefully. Avoid creek bottoms where a flash flood could wash you out. The base of a cliff could be a bad spot, too, because rain can cause slides of mud and even of rock. Dig a shallow ditch of two or three inches under the eaves of your tent so water will flow away from the camp site. Position your camp so the tent backs up into the prevailing wind. Wind-driven rain has a habit of working its way into even the smallest of openings in tents, raincoats, or sleeping bags.

Knowing how to make the most of the terrain is a help, but it isn't nearly as important as having good equipment. The key here is to size up everything that you take with you from the standpoint of how it takes to moisture—either by firsthand experience in the rain or by home experiment in the wash tub or under the hose. Don't forget to see how long things take to dry out and whether they work as well after the ordeal as they did when they came from the store.

For example, headgear with a brim in front may keep the sun out of your eyes, but it lets rain run down your neck. Choose one with a brim that goes all the way around.

Sleeping bags filled with water-absorbent materials such as cotton or kapok may take days to dry out, and acetate fillers droop with moisture and never really regain their loft on drying, leaving the camper with less than the original insulating air space. Careful selection of a filling material in a sleeping bag is the answer. One material that keeps its resilience wet or

SIXTEEN MILLION American campers will silently steal away from home, set up their tents in the outdoors under the stars.

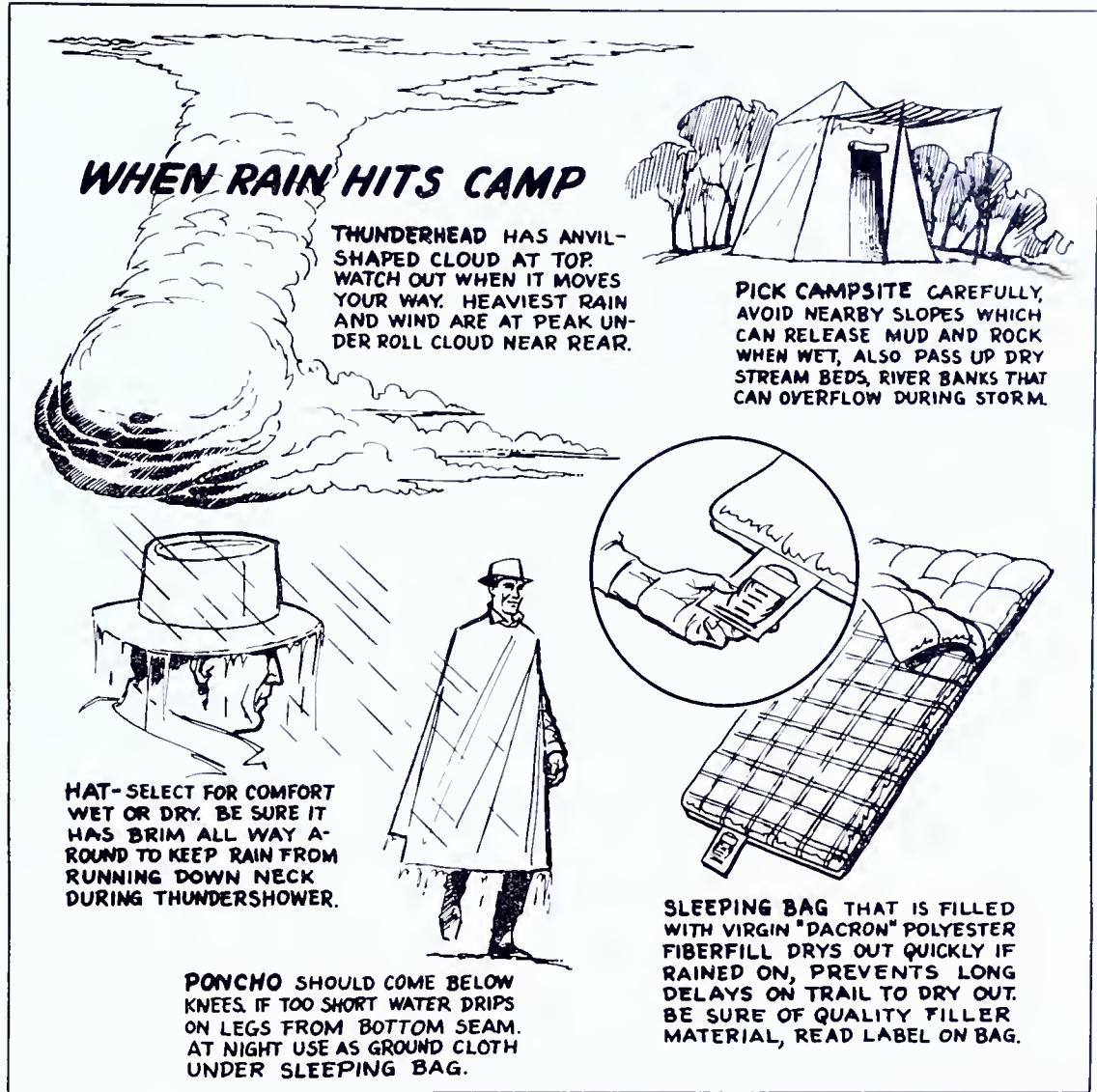


Illustration courtesy of E. I. du Pont de Nemours & Co.

dry, hot or cold, is "Dacron" polyester fiber-fill. No amount of water will cause a major delay in drying out your bedroll. In fact, it takes to water so easily, it permits you to use a home laundry to spruce up the bag at the end of the season.

In many stores these bags are sold rolled in a transparent polyethylene wrapper. Save it for use on the trail as a waterproof pouch. If it wears out, replace it with a plastic garment bag, the kind that the local dry cleaner uses. If this proves difficult to find, visit the local grocery. Be sure the produce bag they offer hasn't been punched with holes for ventilation. Both kinds are light in weight and can be folded up into a small space. The same material in the form of a sheet three by six feet can double as a ground cloth.

When it comes to tents, make your selection from models with a floor that is sewn in. This is important when ground water overflows the shallow drainage ditches just outside the tent walls. When storms come up in the night, you will wish your tent had window flaps that worked from the inside. Seams, grommets, and other small openings that admit small rivulets can keep you awake all night mopping up. Prevent it by testing the tent under the garden hose in the back yard

each year before taking it on the trail.

Few items of equipment do more to promote a feeling of well-being in a rain than good rainwear. City raincoats may be all right for brief showers, but more sturdy garments are required for the outdoor vacationer. Most of these are poorly ventilated, restrict body movement, or turn gradually to a soggy mass during long showers. By far the best is the poncho, a sheet-like garment with a slit in the middle for the head. You wear it like a tent, with the sides open to allow free air circulation. On the trail, a poncho can be worn over the pack, keeping the rest of your equipment dry. In a boat or canoe, it covers the feet and legs and gives plenty of freedom for paddling. Be sure to buy a size that comes below the knees, otherwise the water dripping from the bottom runs off onto your legs too easily.

Of course, it would be great if campers could be spared the risk of a downpour. The only way to guarantee that is to stay home next to the fire. But the risk of a few surprises in the weather is well worth taking to gain the healthy relaxation that only the life outdoors can give, especially when modern equipment can go a long way to making a summer shower just a harmless vacation incident.

Water skiing is not new. In fact, it dates back to the flapper days of the mid-twenties when Fred Waller, the man who years later invented "Cinerama," was granted a patent on his water ski-aqua plane combination. It consisted of two separate skis attached directly to a tow line. The skier stood on the slats in a crouched position and balanced himself by holding two handles, each one attached to a different ski. Needless to say, it was a far cry from water skiing as we know it today, but it did work.

Although for many years water skiing was considered as a sport for the wealthy playboy, it really started to catch on during the last decade. Its increase in popularity was due mainly to the introduction of outboard motors that were more powerful and dependable. Today, water skiing is the fastest growing water sport in the country as each year additional thousands of people seeking fun and adventure decide to give it a try. If you're one of these thousands, Tom Dorwin, a former national champion and now water ski advisor for the Evinrude Boating Foundation, offers a few suggestions to help you get off to a good start.

First of all, choose the proper equipment. Water skis should be selected according to the weight of the skier and the speed and power capabilities of the tow boat. A light skier pulled by a powerful outboard can use



ALONG WITH SKIS and a tow line, necessary equipment includes a life jacket or ski belt. This applies even to expert skiers and experienced swimmers. Putting on your ski belt is the first step when learning to ski.

Water Skiing

Offered for Beginners

rather short and narrow skis. Conversely, a 200-pounder will need skis that are longer and wider. You'll also need a tow line. Completely rigged tow lines, made of either natural or synthetic fibers, are available in the standard 75-foot length. And all water skiers, whether they are beginners or experts, and regardless of how well they can swim, should wear either a life jacket or a good ski belt.

After explaining the equipment, here are the steps Dorwin has used in teaching hundreds of beginners how to water ski. First, slip into the skis. You'll find this easier if your feet and the ski bindings are wet. Adjust the bindings so they feel comfortable and you'll be ready for the first part of your lesson, which will be on land rather than in the water.

Sit down on the skis with the tow bar in your hand and the skis about six inches apart. Your arms should be around your knees and extended out straight. Now have a friend take hold of the tow line and pull you

"How To's"

up. This will give you much the same feeling you'll get as the tow boat pulls you in the water. Repeat this procedure five or six times and then you'll be ready to try the real thing.

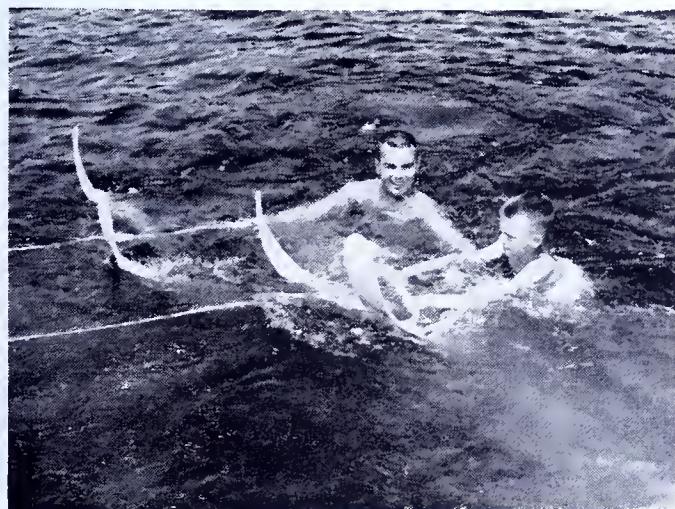
Leave the skis on and wade out into water at least hip deep. Crouch down and let the tips of the skis come up and out of the water while the other ends rest on the bottom. At this point, the tow boat driver should take up any slack in the line and be ready to "hit the gas" at your command. Hold to tow bar tightly, making sure the line is between your two skis and not tangled around your skis or legs. As soon as you feel you have your balance, yell, "Hit it."

As the boat starts to pull you up, remember your dry land practice and don't try to stand up too fast. Once you're up, keep your knees flexed slightly, your arms out straight and lean back against the pull of the tow boat. Take it easy until you get the feel of it. And this won't take long.



NEXT COMES THE DRY RUN. Sit down on the skis and have someone take hold of the tow line and pull you up. Do this five or six times.

GET INTO THE WATER at least hip deep. Sit down and let the tips of the skis come up and out of the water. After the driver has taken up the slack in line, yell, "Hit it," when you are ready to go.



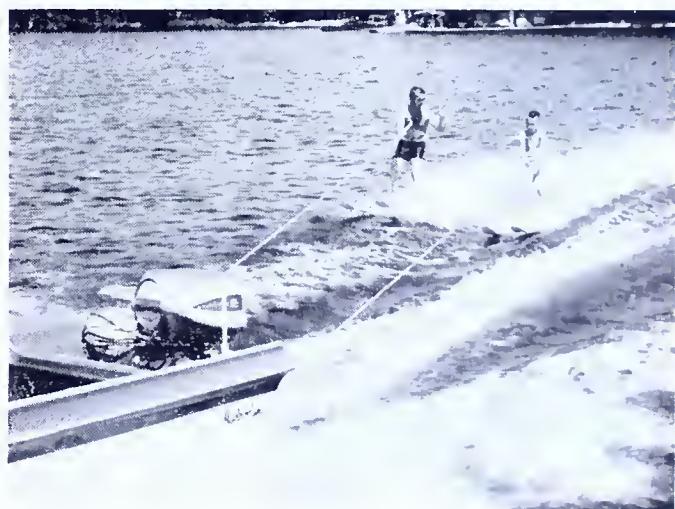
Don't overdo it the first time out. Water skiing puts a strain on arm and leg muscles and, if you're not accustomed to it, you may feel the effects the next day. As soon as you think you've had enough, let the driver know with a prearranged signal. He should then make a pass over the drop off area. When you're in the right spot, simply let go of the tow line and coast to a stop.

If at any time you know you're going to fall, let go



SLIP INTO THE SKIS. To make this easier, first wet your feet and the ski bindings. Adjust the bindings so they feel comfortable.

WHEN SKIING, keep your knees flexed and your arms out straight. Lean back against the pull of the tow boat and enjoy the ride. After a few tries, you'll be on your way to becoming an expert.



of the tow line and drop into the water as easily as possible. Recover the skis quickly and wait to be picked up by the tow boat. In congested areas, raise one ski so you'll be seen by other boat drivers.

According to Dorwin, almost anyone can learn to ski. Of course, some will be better than others. But with determination and practice, the average person can develop into a pretty fair skier in a surprisingly short time.

The Pinchot Park Lake Story

FOR PENNSYLVANIA ANGLERS . . . more than 340 acres of the state's finest fishing waters, stocked and managed by the Pennsylvania Fish Commission, were opened to public fishing on June 16, 1962. More than 2,000 hook and line artists spilled all over the beautiful lake that nestles in the rolling green hills of York County near Rossville. The park, constructed by the Department of Forests and Waters, already christened and named for the Commonwealth's great conservationist Governor Gifford Pinchot, is a Mecca for outdoor-loving folks from near and far. The 2,250-acre park area can accommodate a mass of picnickers, swimmers, boaters and fishermen. Just about anyone with bait, a hook and a line pulled in fish on opening day. Cross section of anglers there was photographed by Fish Commission photographer Johnny Nicklas.



DAY BEFORE the lake opened.



NICE BASS CATCH by Ralph Zinn, Dover, Pa. . . . "You folks must have stocked this heavy!"



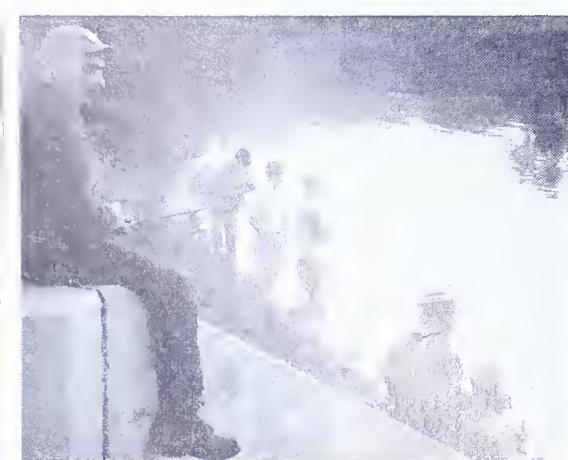
WHAT A DAY! Bruce Davis, 13, of Weigelstown, has plenty nice string of bullheads, channel cats and largemouth bass.



HAVE SOME BLUEGILLS . . . it was a great "catchin'" day for Mrs. Anna Wright, of Elizabethtown, Pa.



CLEANING JOB coming up for Mom declares Bures Strohm, age 13, of Harrisburg.



OFF SHORE near Rossville fishermen were plentiful, so were the fish.



ANGELA AND her dad, Ralph Long, of Wellsville, with two nice bass and plenty of bluegills.



BIG BASS by Woodrow Richardson, Neil Strausbaugh and Ray Strausbaugh, all of York.



WHEN THE LAKE OPENED! About 4,000 fishermen in 90-degree heat celebrated the opening.



PARKING PROBLEM was handled very nicely by park officials, local and state police.



ANOTHER VIEW OF LAKE at Pinchot Park on opening day, June 16, 1962.



IS LIKE A WALLEYE according to Donald Garber as 12-year-old Steve Lehr holds up for close inspection. Fishermen are from York.



YORKER Dave Wolf, 14, had a ball with these four largemouths he landed in one hour and thirty minutes of fishing time.



HAD WALLEYE BITE . . . caught same! . . . Harlen Anderson, of Wellsville, getting him in.



"BASS ARE FOR ME . . . but all I get are bluegills . . . wish I'd have gotten a boat," commented Richard Jones, of York, on opening day.



FAMILY AFFAIR . . . the Hills at Pinchot lake. Left-right are: Fred, Fred, Rickey, Geanna and Mrs. Hill, Allenwood, near Williamsport, Pa.



"GOTTA DO MORE of this," declared Ludwig and Helmit Faul, both 12.



TIRED PULLIN' 'EM IN . . . this unknown angler curled up in his boat for a nap.



A CAMPING TRIP is a wonderful experience for the entire family. But to have the most fun possible, it's best to find a spot all your own. With your boat "parked" right in front of your camp site, you'll be ready to enjoy all kinds of activities. A boat will also be handy for making daily trips to pick up fresh provisions.

If You're Too Cramped to Camp An Outboard Rig Is the Answer

Take an outboard rig, add a fun-loving family, sprinkle with good planning spiced with plenty of highlights, and if camping is your dish, you'll have all the ingredients needed to enjoy a gourmet's delight at a lunch counter price.

Camping has really caught on during the last few years. This becomes quite evident as you drive through the state and national parks where camping is permitted. In fact, it's now so popular that finding a place to pitch a tent or set up a camp trailer in these parks is often next to impossible. But there's still plenty of room to stretch out and enjoy some real camping if a boat is included in your plans.

Your outboard rig is a natural for camping, right from the time you start loading bulky tents and equipment into the boat before leaving home. It provides a convenient carry-all for equipment while making the trip, a way to search out and select that perfect spot and, most important, the very nucleus of your fun once you have set up camp.

For real camping enjoyment, there's nothing like getting away from the congested public sites and finding a special place all your own. This is easy to do with

a boat. When you arrive at the waterway of your choice, put your boat in the water, park your car and forget about it. You won't need it. With your camping gear tucked neatly under the deck, cruise the shore line until you find that perfect spot. Ideally, it should be a place far enough away from the crowded confusion of a public camp area but close enough to the conveniences of a grocery store, fresh drinking water and fuel for your motor and camping equipment. Usually these provisions are available at water-front locations and it's a simple matter to make a short run with your boat each day to get them.

Camping is a family affair and everyone should have a part in it. While Dad and the kids pitch the tent and tidy the camp site, Mom can start thinking about preparing the first meal. An open camp fire is fine for roasting wienies and as a gathering place for an evening song fest, but for cooking meals, a portable camp stove is more practical. A gas lantern or two will provide all the light you will need.

The boat, of course, will play the biggest part in making the trip a success. Camping itself can soon get to be "old stuff"; but with a boat along, the situation is quite different for there is always something to do. With the boat in the water ready to go at all times, no time is wasted in getting ready to go after the big ones as the sun begins to peek over the horizon.

A mid-morning ride on the water skis will be a refreshing break for the whole family. Or perhaps a swim, with the boat filling in nicely as a raft, appeals to you. Afternoon is a time to be lazy. It's the time to gas up the boat and set out for a little exploring, especially if your camp site is set up on a river or on one of a chain of connected lakes. And then to set the day off, there are those magic hours toward evening when the cooling water takes on the appearance of polished glass. Nothing is as relaxing as cruising at this time to the quiet hum of an outboard motor as it slides your boat silently across the water.

Whether you're looking for a pleasant way to spend a weekend or an entire vacation, give boat camping a try. You'll never find a better way to get a more profitable return on your recreational dollar.

Keep the bottom of your boat clean. Tests show a definite drop off in speed of boats left in fresh or salt water over relatively short periods. Fresh-water scum seems harmless, but a four-mile-per-hour drop in speed can send any outboarder to his mechanic for a check up when the real problem may be just plain old drag.

How much anchor rope do you need? It should be at least three times as long as the depth of the deepest water in which you expect to anchor.



ENJOY THE SUN but don't try to get too much at one time. To prevent burning and at the same time get a better looking tan, it's a good idea to apply sunburn lotion to the exposed parts of your body.

Don't Let Sunburn Spoil Your Fun Whether Aboard Boat or Ashore

The sun makes the summer. It warms the air, boosts the water temperature and extends the daylight hours. And sometimes, it even leaves its mark on the over-anxious sun-seeking boatman. You can avoid a lobster red nose and peeling skin by taking a few precautions to combat some of Old Sol's shenanigans.

First, keep in mind that boatmen are subject to a double-barreled blast from the sun. When sitting in an open boat, they get the sun's direct rays as well as those reflected back from the glittering water. Until you become accustomed to this, it's wise to get your sun in small doses. As soon as you think you've had enough, cover up the exposed parts of your body and take a few other safety measures.

If you're especially susceptible to sunburn, it's a good idea to apply sunburn lotion to your face, arms, legs and other parts not covered. Lips should also be protected. For men, a little lip ice will do the trick. Women can protect their lips by wearing regular lipstick.

Sun and water can play havoc with your hair. To keep it from becoming dry and bleached, wear some sort of head covering when in the sun for long periods. A well-ventilated visor cap will help keep your head cool and, at the same time, shield your nose and face. Lady skippers often prefer a head scarf which also helps to keep their hair in place.

Although you probably won't need it for warmth, a lightweight jacket should be taken along on your summer boating outings. When you feel you've had enough sun, slip it on to protect your arms and neck. If you're attired in shorts or a swim suit, take along a pair of thin slacks to protect your legs in case the sun becomes too hot. And don't forget sunglasses. They'll relieve

Precautions Can Prevent Theft of Outboard Motor

Captain Hook and the days of piracy are gone but modern day thieves still present a problem for outboard skippers. Each year thousands of outboard motors as well as complete boating rigs are stolen. In many cases the loss could have been avoided had a little extra precaution been taken by the owner.

There are several things a boatman can do to discourage theft of his equipment, say the people at Evinrude Motors who handle stolen motor complaints. On most outboard motors, holes will be found in the handles of the clamp screws used in securing the motor to the boat. If the clamps are tightened so that both handles point downward, a regular bicycle lock can be passed through the holes making it impossible to remove the motor without first disturbing the lock.

A boat stored outside and left unattended on a trailer is easy pickings for a thief. All he need do is attach the trailer to a car and speed off. If you store your rig outside, it's a good idea to lock it down in some manner. A heavy chain can be used to secure the trailer to some stationary object such as a tree or post. Another solution is to chain one of the wheels to the axle. Anything you can do to make it difficult to hitch the trailer without causing a commotion will help.

If your boat is kept in the water, it's a good idea to keep the area lighted at night. Many thieves are quite bold but most prefer to work under the cover of darkness. A light may be enough to keep them away.

Insurance won't prevent theft but it will make your loss less serious if it should occur. It's only good sense to have your rig fully insured for its current value at all times.

To establish a record of ownership, the Evinrude people suggest that a new motor be registered with the manufacturer at the time of purchase. When buying a used outboard, make sure that the bill of sale, which should be kept, includes both the model and serial numbers of the engine. If you should experience the misfortune of having your equipment stolen, immediately report the theft to local law enforcement officers and to your insurance company.

If all boatmen were to vote for the greatest boating nuisance, chances are the guy who takes too much time clearing his craft from a public launching area would win the contest by a landslide. Try to put everything needed in the boat before launching.

eye strain and discomfort caused by squinting over the sparkling water. Good sunglasses will also make it easier for you to see when driving a boat.

Get out and soak up some of that wonderful and healthful summer sun, but don't try to do it all at once. By following these common sense suggestions, you can prevent painful sunburn and get a better looking tan, too.

Hatching Shad Eggs

THE SUSQUEHANNA RIVER FISHWAY study by Milo C. Bell and Harlan Holmes, now nearing completion, has been augmented again this spring by Pennsylvania Fish Commission fishery biologist Robert Bielo. Fertilized shad eggs were, for the second straight year, secured from Chesapeake Bay commercial fishermen and transported to hatching boxes at scheduled points in the Susquehanna River. While the hatch this year was termed unsuccessful because of high temperatures and very low water conditions in the river, the previous year's hatch achieved 80 to 97 per cent results. Photographs showing how the shad eggs are hatched are by the Fish Commission's chief cameraman Johnny Nicklas.



FISHERY BIOLOGIST Robert Bielo measures a given quantity of shad eggs in a graduated cylinder.



EGGS are allowed to settle to gain an accurate reading.



MEASURED EGGS are shown to (left to right) Harlan Holmes, one of the team of Bell and Holmes making the survey; Maynard Bogart, president, Pennsylvania Fish Commission; and Sunbury newspaper editor, Basse Beck.

INTO HATCHING BOX go the eggs to mingle with the waters of the Susquehanna. A close watch and record is made of all hatching phases.

PROPER ADJUSTMENT of the box keeps the eggs rolling, active and at the proper angle of tilt.





MAYNARD BOGART
New Commission President



JOSEPH M. CRITCHFIELD
New Commission Vice President

Commission Officers Elected

The Pennsylvania Fish Commission at its July 9, 1962, meeting held at Harrisburg elected Maynard Bogart, of Danville, Pa., as its president and Joseph M. Critchfield, of Confluence, Pa., vice president.

Mr. Bogart, who succeeds Gerald J. Adams, of Hawley, was appointed by Governor George Leader to the Commission on January 16, 1956, to serve until January, 1964. He was the first farmer to serve on the Commission in more than 40 years and has spent a lifetime in the outdoors.

He was a school director for the Valley Township Schools of Montour County, serving in this capacity for five years. His untiring efforts to promote better fishing and hunting throughout Pennsylvania have found a warm spot with many Keystone sportsmen. He has been active in many civic and sports groups in his community.

He is married to the former Louise Parks, of Benton, Pa.; they have seven children—five girls and two boys, and 24 grandchildren.

Mr. Critchfield was first appointed to the Commission in 1940 by Governor James, was again appointed by Governor Leader to serve until January, 1958, and was then reappointed by Governor Lawrence to serve until January, 1966.

He helped organize the Somerset Sportsmen's League in the Southwest Division of the Pennsylvania Federation of Sportsmen's Clubs and the Turkeyfoot Game and Fish Association, which he served as president for 25 years.

He is married to the former Anna Belle Blubaugh; they have four children, three boys and a girl. Mr. Critchfield retired from the U. S. Post Office Department in 1955. His vitality, action and concern in all phases of conservation have earned him the tribute and respect of Pennsylvania's sportsmen.

In other actions, the Commission approved the extending of the trout season through October on all lakes of more than 10 acres which have been stocked with trout.

The Commission also confirmed an earlier mail vote permitting fishing on both sides of Spring Creek from the footbridge to the lower end of the property at Fisherman's Paradise.

It voted to set all 1963 fishing regulations at an October meeting and according to present plans, a public hearing is scheduled on the proposed regulations in advance of the Commission meeting. The Commission further approved a five-year agreement with Ohio for the management of the Pymatuning Reservoir.

Lightning Strikes More Than Once —in the Same Place



A LIGHTNING KILL of big fish.

Lightning is seldom considered as a fish killer but under certain circumstances it can be. When the Benner Spring Fish Research Station was first built, many large brood trout were placed in the pools. They were not there too long when one morning after a hard thunder shower, one of the ponds had a number of these large fish either dead or paralyzed. The fish were unusual in that they had no sign of disease. The only mark was a single black stripe down through the heaviest portion of the back. After an excited session of "What happened?" somebody recalled that this same black streak appeared when fish were hit too heavily with an electric shocker. Therefore, it was concluded that it must have been the lightning from the night before. Subsequent mortalities proved the theory.

Lightning is peculiar in many ways. First the water chemistry must be such that the water is a good conductor. Also the lightning hits only the largest fish because they offer the most resistance to the electricity. Lightning in the ponds cannot be grounded because it is coming from the ground. A bolt can hit a tree a half-mile away, follow down the tree, race through an underground water course and then affect the fish over a distance of at least a half-mile.

Because the lightning couldn't be grounded, it was difficult to protect the large fish in the ponds. However, with the aid of the Pennsylvania State University a system of cables and metal plates was devised which would carry the lightning around the edge of the ponds rather than through them. Since these have been installed, lightning has had little effect, except for the Home for the Aged, who were recipients of the lightning-killed fish.

KEEN BUSS, *Fishery Biologist*
Pennsylvania Fish Commission
Benner Spring Fish Research Station

THE SPRING HOUSE

When the hot days of late summer bring the promise of spring's fulfillment, the country boy of yesteryear, now a graying grandfather, pauses to wipe his brow and remember the cool dampness of the springhouse where, as a child, he found asylum from the heat.

He remembers the barrel churn, the cream separator and the orderly rows of earthen crocks placed in the overflow trough, each wooden cover weighted down with a stone. He remembers how stealthily he removed the cover, and, lying on the damp floor, braced himself with his hands in the cool water to drink of that rich goodness. He then replaced the cover carefully, licked his lips to remove telltale evidence and rose refreshed.

He would dig deep into his overall pocket for the red handkerchief that held captive grasshoppers to feed the trout he had placed as a fingerling in the spring. As the fish vigorously hit the insects, the boy noted with satisfaction its brilliant colors and how much it had grown under his care.

Outside the door he paused to observe the liehen-covered phoebe's nest that blended so well with the gray stone lintel although the nestlings had long since flown. He stopped beside the gray-flagged steps to pick a sprig of wild spearmint, savoring its aroma in a meditative sort of way, and then anticipated a generous crust of hot bread fresh from the oven and topped with rich butter and apple mint jelly.—Albert G. Shimmel

The Feminine Angle

JUST ONE MORE CAST

By MARION LIVELY

The plaintive cry of fishermen resounds, "Just one more cast," as darkness descends and storm clouds loom and dinner gets cold. Which just goes to show what optimists fishermen are. There is surely a big smallmouth by that rock ledge up ahead or a huge brown just has to be under that tree root in the next pool. And that next cast is the one that is going to take him.

On a beautiful day last fall I was fishing for smallmouth in the Allegheny River. Actually the water was too cold for the bass to be feeding actively but the water was low, the day so calm, and the bug burbled along so invitingly that I felt sure any moment a bass would arouse himself from his lethargy to snatch it. Not many did and certainly not that hoped-for monster, but I went happily and hopefully on, sure that the big one that had to be under the next boulder would roar up to my lure. It was a good day—the water was cold, the sun felt good beating down on my back and I was filled with a delicious sense of expectancy. "Just one more cast" was all I needed!

That phrase becomes all too familiar to the families of fishermen. Several years ago we were taking our daughters on their first trip to a particularly remote camp site. My husband and I know and love that place so well that it's like coming home, but arriving as we did, after dark, I suppose it did seem a little spooky to the girls. The headlights made a tunnel up the dirt road and the only signs of life were some shining eyes and a fox scurrying across the road. The girls were enjoying scaring each other and themselves with talk of bears and snakes. Suddenly, Claudia asked, "Dad, what would you do if a rattlesnake bit me?" Before he could answer Anne said drily, "He'd say, 'Just one more cast, honey.'"

A man seldom knows what he can do until he tries to undo what he did.

Never Bet on Carp

Can carp ever be taken on the dry fly? As recently as a year ago I would have given five-to-one odds that it couldn't be done. Now let me tell you how I lost a crisp, new five dollar bill.

The friend with whom I made the wager got me up at the crack of dawn and drove me to a five-acre farm pond. He tossed some small pieces of bread on the calm surface and rigged up his fly rod.

Within five minutes a half dozen carp were on the surface feeding on the bread. My friend tied a No. 10 White Miller dry fly to his leader, whipped out line, and dropped the fly in the midst of the bits of floating bread.

Seconds later a 3-pound carp rolled on the surface and engulfed the fly. My friend set the hook and, as the carp took off, he handed me the rod.

That carp stripped off 35 yards of line, right down to the backing, and never stopped. When the spool showed empty I held the rod tip high and held on for dear life. The fish came to the surface, thrashing, and broke the leader at the knot.

I confess my hands were trembling when I returned the rod and handed my friend his five spot.

Among sport fishermen, the lowly carp is not generally held in high esteem. But there are several ways of fishing for Mr. Carp that make him as worthy an adversary as any fish that swims.

The most interesting method is surface fishing. Known as Margin Fishing, the technique was developed in England. It is not generally known in this country.

Carp are primarily bottom feeders. But during hot weather they frequently come to the surface at night and early morning to feed on bits of floating algae. It is common to find them rolling on a calm surface at daybreak.

The basic tackle for Margin Fishing consists of a fly rod rigged with floating line or an ultra-light spinning outfit. The bait is a rectangular piece of bread crust about the size of a book of matches. This is cast out and permitted to float on the surface with the point of the hook projecting from the upper bread crust.

Under ideal conditions, such as in a farm pond, it is possible to scatter bread on the water, get the carp to feeding freely, and drop in a white dry fly. But for "wild" carp it's safer to stick with bread.

Your fishing should be done at night or early morning on a calm surface in the vicinity of surfacing fish. For best results, scatter a few pieces of bread around the hooked crust to attract carp and whet their appetite for bread.

When carp feed on the bottom they do a lot of nibbling on the bait. Not so when they are surface feeding. Turning on their sides, they engulf the food in a gulp, like game fish, and keep on going.—*Jim Hayes*

The carp bites either at worms or at paste. Of worms I think the bluish marsh or meadow worm is best. As for pastes, there are almost as many sorts as there are medicines for toothaches. Doubtless sweet pastes are best. I mean pastes made with honey or with sugar. These, that you may better beguile this crafty fish, should be thrown into the pond or place in which you fish for him some hours, or longer, before you undertake your trial of skill with the angle-rod. Doubtless, if it be thrown into the water a day or two before, at several times and in small pellets, you are likelier, when you fish for the carp, to obtain your desired sport.

—*Izaak Walton*

Vacation Quiz for Anglers

PENNSYLVANIA FISH

MATCH:

1. Bull Head	A. That part of the anatomy of his antagonist most carefully observed by a matador.
2. Perch	B. Formerly a wood commonly used to hold teams of oxen together (or apart).
3. Sucker	C. Fancy, but actually they're just relatives of foreigners who came here in the 1890's.
4. Pike	D. Name comes from Old Norse, meaning <i>to brag</i> or from the Latin, <i>to s'ander</i> , although heaven knows it has small reason to do either!
5. Pumpkin Seed	E. Pennsylvania's first roads were so-called.
6. Bass	F. The opposite of <i>Convergent strabismus</i> (cross-eyed, to you).
7. Sturgeon	G. A buyer of gold bricks, a plumber's helper, or one who believes he saves money fishing for his sea food.
8. Goldfish	H. The veranda on a bird's split-level.
9. Carp	I. Grandparent of a Thanksgiving delicacy.
10. Walleye	J. It might be a knight for all its armor; it provides fare for the cocktail party; and its swim-bladder made isinglass, one of the earliest plastics!

ANSWERS

A—1, H—2, G—3, E—4, I—5, B—6, J—7, C—8, D—9, F—10.

OUTDOOR BOOKS

Beginning With Boats by David Klein. Thomas Y. Crowell Company, 432 Fourth Avenue, New York 16, N. Y.; 1962. Price \$3.95.

This is a book supposedly written for youngsters with "average parents with average incomes." Nobody quite knows what average is but if you're going to fool around boats even a little bit, it'll take an average around the 7-G mark and more. Darn little in the boating game comes at a discount.

I heartily agree with the author that boating, in the small boat divisions, is a fine, healthy outdoor sport for youngsters with much leisure time on their hands, especially over the vacation period. The book tells of many plans, projects and ideas, such as converting a rowboat to sail at little cost and the pitfalls of building a raft or boat. It also goes on with chapters on seamanship, safety and teaching a healthy respect for boats, water and weather.

Reading along in this book I found myself more and more pitying youngsters of the inlands who often never get the least little glimpse of a lake, harbor or the sea, and many of whom will never get the glorious feel of a tiller.—*G.F.*



"TONY LECH DAY" as recently observed at Schuylkill County Pumping Station Dam. Pennsylvania Fish Commission District Fish Warden Lech, scheduled to retire on July 31, was presented with a fine wrist watch and the best wishes of his many friends by three area sportsmen's clubs. Those honoring the warden are (left to right): Jack Kress, treasurer of Pumping Station Boosters' Club; Harry Rudy, president of Shenandoah East End Field and Stream Club; Deputy Fish Warden Frank Moser; Warden Lech; Joe Machulsky, president of the Pumping Station Boosters; Joe Dettery, president of Brandonville Fish and Game Club.—Shenandoah Evening Herald Photo.

STREAM NOTES

On July 1, Myron Derr, Richland, Pa., stopped at my home for carp dough recipes. Going through back issues of the PENNSYLVANIA ANGLER, we found five. Derr used one of them, went fishing at Charming Forge Dam, then stopped to show me his catch—two 18-inch carp and a snapping turtle weighing about 10 pounds which had hooked itself in a front foot. Next day I got a call from Derr. He showed me two untrusted fish hooks— $2\frac{1}{2}$ inches in length and three-quarters of an inch space between the point and the shank. He informed me he had accidentally reached into one of the hooks lodged in the turtle's throat while cleaning it, then noticed the other hook protruding through the snapper's stomach. My only comment was . . . "starved snapper."—Special Fish Warden Lloyd I. Hartman.

#

Cynthia Whittingham, 8, of Philadelphia, does not like worms. She put two huckleberries on her hook, cast it into Lake Harmony and pulled out a $21\frac{1}{2}$ -inch channel catfish!—Frederick W. Ohlson, District Warden, Carbon Co.

#

According to District Warden William E. McInay (Bedford), more eels were caught during the month of June, 1962, than in the last 25 years in Bedford County. It was quite common to check fishermen at night with one to eight eels per.

#

Smallmouth bass have been at an all-time high this season at Lake Erie. Creek minnows seem to be the best bait. Large perch of the lake are running a close second, hitting best on medium-size emerald shiners.—District Warden Norman E. Ely (Erie).

Fish Wardens on Errands of Mercy

District Fish Warden Stephen Shabbick and Deputy Donald Curtis were recently patrolling the Susquehanna River near Falls, where they observed four youngsters in a rowboat.

According to a news story in the July 19 edition of the Tunkhannock *Republican*, two of the boys attempted to swim across the river, while their boat was anchored near the opposite shore. After swimming about 200 feet, and while still 50 feet from shore, one of the youngsters sank from sight. His companion returned to render aid, and for a moment it appeared both would be drowned.

The two law enforcement officers raced to the scene, just in time to pull the two struggling youths from the water.

The two wardens were again on patrol, this time at Lake Winola when they saw a car pull up near the shore; the driver emerged from the vehicle and raised the hood. As the wardens looked on, she unscrewed the radiator cap, apparently to check an over-heating problem. As she did so, hot water and antifreeze cascaded from the radiator, scalding her face and rendering her temporarily blind. Shabbick and Curtis rushed her to her home for first-aid and thence to a physician.

#

While patrolling Glade Run, I apprehended a man fishing without a license. He told me he had the purchase of a license high on his grocery list for the following Saturday.—District Warden Clifton E. Iman (Butler and Beaver).

#

A lady in Warren County has something new in landing nets. Her little fox terrier hups at her side until she catches a trout, then jumps in and retrieves the fish. District Warden Kenneth G. Corey (Warren) figures this is no job for a hard-mouthed retriever.

#

While preparing a food plot in the Cranberry Glade Lake vicinity on Game Lands No. 111, Somerset County, several crew members and I witnessed something extraordinary. We were caught in a rain and hail storm and took refuge in a truck. Suddenly the surface of the lake came alive with swirling fish; jumping repeatedly, the fish continued this action for 10 to 15 minutes. We wondered if they were striking at the hailstones (many as large as a quarter) floating in the water, or whether the change in atmospheric pressure as a result of the storm caused the unusual flurry.—Carroll Kinley, Southwest Division Land Manager, Pa. Game Commission.

#

On a routine patrol of the Schuylkill River in the Linfield area I was checking a fisherman who told me there was a large frog doing a lot of splashing in the water just over the bank. Just as he finished telling me this, a half-grown mink scampered up over the bank, almost ran over my feet, then headed back into the river again. A portion of the frog was still in his mouth. In this county most mink are gone guys at this time of year.—District Warden Walter J. Burkhardt (Montgomery-Phila.).

Fulton County Lake Under Construction

Construction of Meadow Grounds lake and dam site in Fulton County is currently underway. The 204-acre lake, which will be developed by Fish Commission personnel under the supervision of Edward Miller, chief engineer, will be located on State Game Lands No. 53 in Ayr Township.

The \$197,000 project will be financed by Dingell-Johnson funds, which are derived from excise taxes on fishing tackle, and Fish Commission funds.

When the project is completed the breast of the dam will have a maximum height of 37 feet. The dam will require approximately 43,000 cubic yards of earth fill.

In addition to the work on the lake and dam site, according to Cyril G. Regan, chief of the Division of Real Estate and Engineering, the project also will include construction of 2 miles of new access roads and improvement of 1½ miles of existing roads. Improvements to the site will include parking, sanitary, boat launching and mooring facilities.

The project, which is scheduled for completion in late 1963, was designed by the engineering staff of the Pennsylvania Fish Commission. When completed, the lake will be stocked by the Commission. Normally three to four years are required for the development of an adequate population of legal size fish.

Roger Latham Elected First VP of OWAA, Seth Myers, Secretary

Roger Latham, the Pittsburgh Press Outdoors Editor, has been chosen 1st vice president of the Outdoor Writers Association of America. Seth L. Myers, Outdoor Editor of the Sharon Herald, was elected secretary. Outdoor Editor of the Shreveport, La., Times, Grits Gresham, was named president; Bob Steber, Nashville, Tennesseean, 2nd vice president; John Gartner, Western Outdoors Editor, 3rd vice president; and E. Budd Marter, III, treasurer.

District Warden Lee F. Shortess (Lycoming) reported he prosecuted a nonresident fisherman who had purchased a resident license in early April but admitted to fishing in 17 states every year with resident licenses and proved his point by showing the warden several licenses from various states.

#

Fishing had been swell at East Bangor Dam, Northampton County, but it suddenly came to a screeching halt. A vast locust hatch scattered over the waters of the dam and the fish stuffed themselves in one great "locust orgy." It was all over in several weeks and the fish were again willing to hit ordinary stuff such as worms, minnows and artificials.—**District Warden Miles D. Witt (Northampton and Bucks).**

Let every fisherman remember that one day his son will follow his example instead of his advice.

Meet Your Commissioners



RAYMOND M. WILLIAMS

RAYMOND M. WILLIAMS, East Bangor, Pa., was appointed to the Pennsylvania Fish Commission in August, 1959, and reappointed by Governor David L. Lawrence in January of 1960 for a term of eight years. Born in Bangor, Pa., in 1921, he attended public school and graduated from Bangor High School, played football, baseball and basketball. After graduation he became active in civic and community affairs, served the Borough Council, managed the Little League organization, was president of the Lions Club, assumed leadership in fraternal and sportsmen's groups.

He became very active in the Pennsylvania Federation of Sportsmen's Clubs with leisure time devoted to the hobbies of hunting, fishing and racing pigeons. In June, 1950, he entered into a business partnership with his brother, Charles, jointly operating the Greenwall Trout Hatchery located near Bangor.

He is married to the former Madeline Johnson; they have one daughter, Jackie.

His devotion to conservation generally and to better fishing in Pennsylvania in particular has been long recognized by sportsmen throughout the southeastern section of the Commonwealth. His fight for clear, clean water, more boating access areas and a better break for outdoor-loving folks, has won him a host of friends in Pennsylvania and elsewhere throughout the nation.

The 1962 "Sportsmen's Manual" published by the **Clarion Council of Sportsmen's Clubs** is packed with hunting and fishing information. It includes trout stocking in county streams, addresses and telephone numbers of county fish wardens and the supervisor, a list of club chairmen and how to contact them, plus other items of useful information. The Council is complimented on a fine booklet.

A Fly



1



2



3



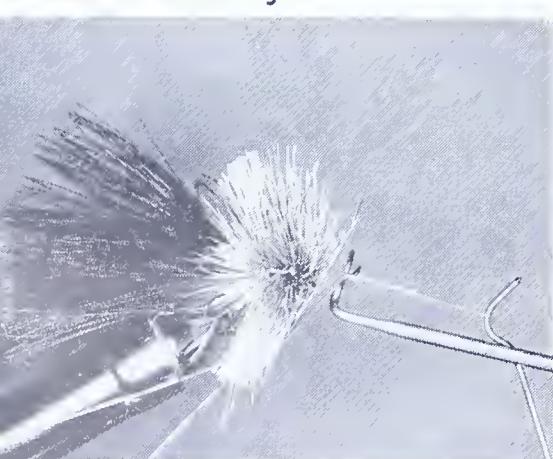
4



5



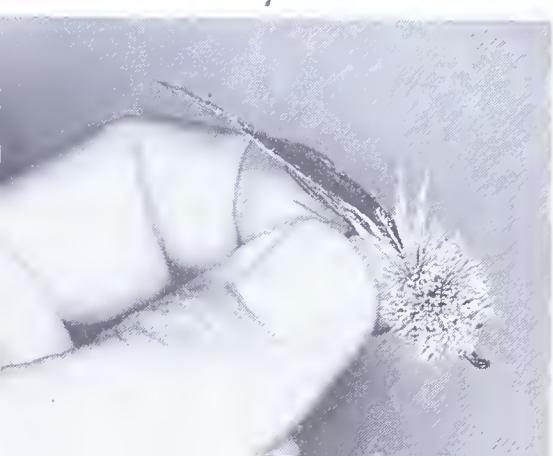
6



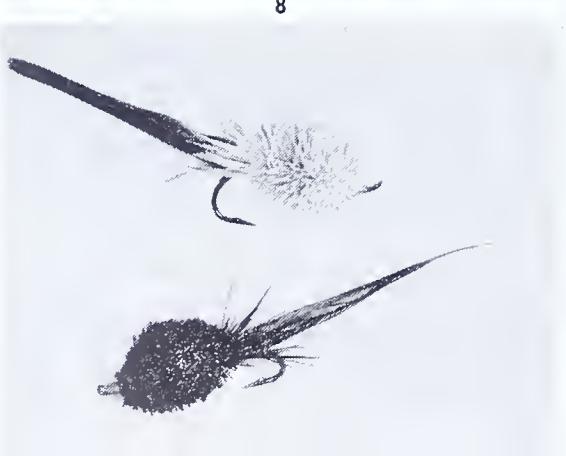
7



8



9



A hair packer should first be made to insure a tightly packed hair body. Cut the handle from an old toothbrush and drill a couple of additional holes of different diameters to accommodate several hook sizes (See fig. No. 5).

Place a size No. 6 long shank hook in vise and anchor size A tying silk or nylon to shank in position shown.

3- Place two dark gray marabou plumes back to back and tie in.

Cut a tuft of deer or antelope body hair from the hide and grasp butts of hair between thumb and forefinger of right hand. Slide hair over eye of hook and position hair so that it completely surrounds hook and hair ends overlap base of marabou. Maintaining hold with right hand, take a complete turn of thread around hair with left hand and pull thread tight. Move thread forward of hair and half hitch.

5- Grasping hook behind hair with left hand, slide hair packer over eye of hook with right hand and press hair firmly back.

Cut another tuft of hair and grasp with left hand. With right hand, take a loose turn of thread completely around hair and slide hair down thread until it is flush with hook shank. Swing thread under shank and over hair, and pull thread firmly downward, causing hair to flair and spin around shank. Move thread forward of hair, half hitch, and compress hair with packer. This step should be repeated until the hair body fills the hook within $\frac{1}{8}$ inch of the eye.

7- Whip finish and lacquer head.

8- Trim hair body to a semi-flat, oval shape. Bevel top of body to eye of hook to make lure ride below surface film when worked.

9- Finished Marapole, wet.

10- Marapole should be tried in various color combinations and sizes.

Tadpole for Bass

By CHAUNCY K. LIVELY

Every seasoned river bass fisherman has had the soul-shattering experience of seeing a big smallmouth charge into a pod of tadpoles in water so shallow that the topside of the bass is fully exposed. This is not an uncommon occurrence in late summer and fall, and although the plug and spin fisherman usually has a tadpole lure of some sort in his box to cope with this situation, an imitation suitable for use with the fly rod is not generally available unless the fisherman makes his own.

The combination of marabou plumes and deer or antelope hair makes an ideal fly rod tadpole imitation and the Marapole was born of the necessity of having something in the bass kit to satisfy the tadpole eaters. The Marapole can be easily tied by following the step-by-step procedure and photographs.

The Marapole will fish just under the surface with its marabou tail wiggling frantically when worked in short twitches of the rod tip. Or, if you prefer to fish it deep, you can squeeze water into the hair body and it will go down.

The first Marapole was christened by my wife during the 1960 season on the Allegheny River near the mouth of Big Sandy Creek. With it she caught and released some twenty-five bass in an afternoon's fishing and it was enough to convince us that the smallmouth show a liking for tadpoles.

—Just ask any bass.

Youth Outdoors



PETRIFIED PUP. . . . A rock found wedged in the bank of the North Branch of the Susquehanna River, near the village of Wapwallopen, resembles a dog's head. The eye, nose, floppy ears and general profile of the pup's face have been sculptured in rock by an oddity of nature.—Don Shiner photo.



ANNUAL CHILDREN'S FISHING RODEO at Dennis Creek, near Fort McCord, attracted an estimated 1,600 young participants recently. The rodeo, co-sponsored by the Chambersburg Rod and Gun Club and radio station WCBG, was termed by officials the most successful of any held to date.—Simpson photo.

PYMATUNING LAKE walleye fishing was fabulous for William Bauer, of Harrisville, Venango County. This 30-inch, 10½-pound fish is a sample.—Photo by Eddie Gray, Meadville Tribune.

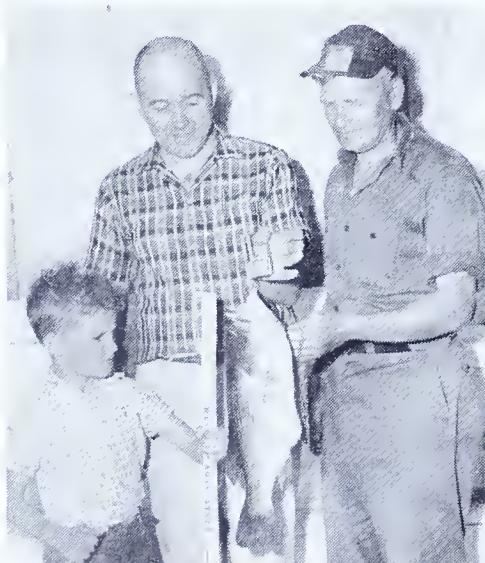




EIGHT-YEAR-OLD Donny Mumney, Zion Grove, caught this beautiful 26-inch, 5½-pound brown trout in Mahoning Creek, east of Danville, Pa., on a salmon egg and night crawler.—Shenandoah Evening Herald photo.



FIVE-YEAR-OLD Roy Hockenberry, Altoona, Pa., caught this fine 18-inch brown trout in the Red Zone above Bellefonte Hatchery on a minnow. It was no fluke because he had taken a 14½-inch trout the week before.



BIG BASS, 20-inch, 5½ pounds, caught by Charles Cleveland (on right), Asaph, Pa., at Hills Creek Lake, is admired by Timmy and Don Campbell (left and center), of Wellsboro, Pa.—Wellsboro Gazette photo.



BIG MUSKY, caught by John Fowler, Williamsport (on left), at Hills Creek Lake. L. H. Stebbins (on right), Hills Creek, helps hold the 36-inch, 15-pound beaut. —Wellsboro Gazette photo.



WALLEYE FISHING WAS HOT for Vincent Beige, Meadville, Pa., at Pymatuning Lake recently and here is the stringer of six dandies to prove it.—Meadville Tribune-Graphic Arts Photo.



----- CLIP HERE FOR **46-MAP BASS SEASON SPECIAL** -----

Send me immediately postage-paid **THE BASS SEASON MAPS SPECIAL**
Enclosed is \$5.20 (includes Pa. Sales Tax)

To:

Name _____

Address _____

Town _____

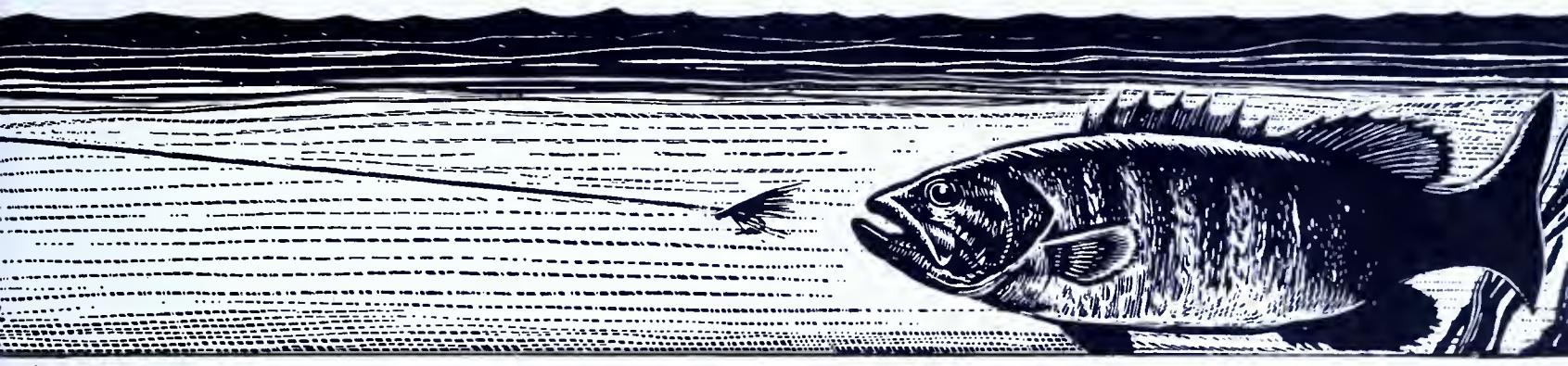
Make check or money order payable to the Pennsylvania

Fish Commission

Mail to—**PENNSYLVANIA FISH COMMISSION**

HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.



BASS SEASON SPECIAL!

Pennsylvania Waters-Highway Maps

All Counties Except Philadelphia

46 - MAPS - 46

FOR ONLY

FULL SET

\$5.00

FULL SET

Plus 4 per cent Pennsylvania Sales Tax . . . We Pay the Postage

If Purchased Singly the Set Costs You \$18.95

You Save \$13.95 With This Offer

Send Bass Season Map SPECIAL ORDER BLANK on Page 24 Opposite





P 38-31

7.16

02

✓

September, 1962

Clipb

1.6 a.2 ✓

PUBLIC LAW No. 566

and the

FISH COMMISSION'S

PART

By **ALBERT M. DAY**

Executive Director
Pennsylvania Fish Commission

Water is the most important natural resource in the Commonwealth of Pennsylvania, and events of great significance are now underway. Real progress is being made under a closely coordinated plan for the better use of our abundant waters. Pennsylvania is fast becoming one of the foremost states in the Union in the development and wise use of its water resources.

One phase of this plan is the cooperation of Federal, state and other political subdivisions in the creation of new water impounding structures. Under what is known as Public Law No. 566, the Federal Department of Agriculture, acting through the Soil Conservation Service, is authorized to pay a major portion of costs incurred in the construction of water control facilities for the purposes of flood control, water storage, regulated flow, water supply, fish and wildlife conservation, recreation, and related uses.

Local agencies (any group below Federal level) are required to participate by acquiring the necessary lands and assuming the administration and maintenance of the projects when completed. This has given the Fish Commission an opportunity to enter into this joint undertaking and develop new fishing areas at a fraction of the cost to Pennsylvania fishermen that would be needed if they were to be constructed solely as a fishing lake.

On June 5, 1962, at Meadville, Crawford County, a huge bulldozer broke a silver ribbon to push the first earth in the construction of an impoundment across Mill Run which will create a 550-acre water area to be known as Tamarack Lake. The Fish Commission has acquired approximately 825 acres of land from 29 separate property owners on which the new lake will be built. Land cost to the Commission was almost \$60,000 while construction of the dam is estimated to cost some \$43,000 from the Fish Fund. In addition, another \$30,000 coming from the Fish Fund will be required to provide parking areas, boat launching and mooring sites and other like facilities to insure the widest public use of this new resource.

This is the Commission's share of cost as local sponsors. It is estimated the Federal Government's share of cost will amount to approximately \$225,000 for building the dam. When completed the project will be administered by the Pennsylvania Fish Commission. Wide local support, including financial assistance in the administering of contracts and property surveys, is given by the Board of Commissioners of Crawford County, the Crawford County Soil Conservation District and the Meadville City Council.

On June 20, 1962, a ground-breaking ceremony was conducted in Tioga County where another dam is currently under construction. This dam will impound the 70-acre Beechwood Lake at a total estimated cost to the Fish Fund of \$128,861.51.

Down in the opposite corner of the state from Meadville, a meeting was held on June 1 in Downingtown between Federal, state and local officials to review the latest plans for development under P. L. 566 of twelve dams to control the waters of the Brandywine watershed. In this broad plan which will require an expenditure of more than \$6,000,000 for completion, the Fish Commission proposes to participate by acquiring lands, sharing in the cost of construction of the dams and assuming the management of the water areas on two of the twelve projects. One on Beaver Creek would provide some 90 acres of fishing lake and the other on the East Branch of the Brandywine will provide a 125-acre lake. Estimated cost to the Commission will amount to around \$112,145 at present day prices.

The fisheries management of the impoundments being created will be the responsibility of the Commission and will provide a vast new recreational resource and insure public access and fishing in the future.

These examples of close-knit coordination and cooperation by Federal, state and local agencies demonstrate the new approach in water management that is being pioneered in Pennsylvania. We are the leaders in this field throughout the United States and can be proud of the accomplishments to date. The time has long passed when taxpayers can afford to have expensive single use projects developed when it is possible to pool their resources for the benefit of the many.

The drawing boards have an additional 15 such projects being considered for construction throughout the Commonwealth under the provisions of Public Law 566. The others to follow will depend upon solution of the difficult problem of financing. All of them are included as a part of the Fish Commission's project for PROJECT 70. We are firmly convinced that all will be good investments in the recreational future of the Commonwealth.

PENNSYLVANIA FISH COMMISSION DIRECTORY

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer
PAUL J. SAUFR
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief

Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief

EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief

Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the

PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

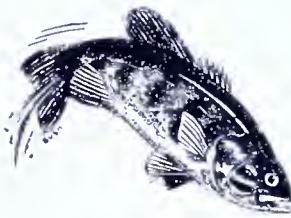
MAYNARD BOGART, President Danville

JOSEPH M. CRITCHFIELD, Vice President Confluence

GERARD J. ADAMS Hawley ALBERT R. HINKLE, JR. Clearfield

WALLACE C. DEAN Meadville R. STANLEY SMITH Waynesburg

JOHN W. GRENOBLE Carlisle RAYMOND M. WILLIAMS East Bangor



SEPTEMBER, 1962

VOL. 31, NO. 9

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

EDITORIAL—PUBLIC LAW AND THE FISH COMMISSION'S PART—
Albert M. Day, Executive Director, Pennsylvania Fish Commission

- 2 AQUATIC CAMOUFLAGE—Wilbert Nathan Savage
- 6 A JOURNEY WITH WATER—Eugene R. Slatick
- 8 MY FAVORITE FISHING SPOT—M. C. Nice
- 9 THE LUCKY BONE—Bill Walsh
- 10 BOATING
- 12 NEW ACCESS DEDICATED ON RAYSTOWN DAM—Johnny Nicklas photographs
- 14 GO LIGHT FOR PIKE—Keith Schuyler
- 15 TACKLE TIPS—Don Shiner
- 16 THE GREENER GRASS—W. T. Patterson
- 17 YOUTH OUTDOORS, CANOE ADVENTURE—Thad Bukowski
- 17 OUTDOOR BOOKS
- 18 WATER WHEELS—John T. Starr
- 18 ON THE NATURE TRAIL—Carsten Ahrens
- 19 BOW ANGLING—H. R. Wambold
- 19 COOKERY—J. Almus Russell
- 20 STREAM NOTES
- 21 CLUB NOTES
- 21 THE JUMP PLUGS—Albert Shimme!
- 22 EDITOR'S ANGLE

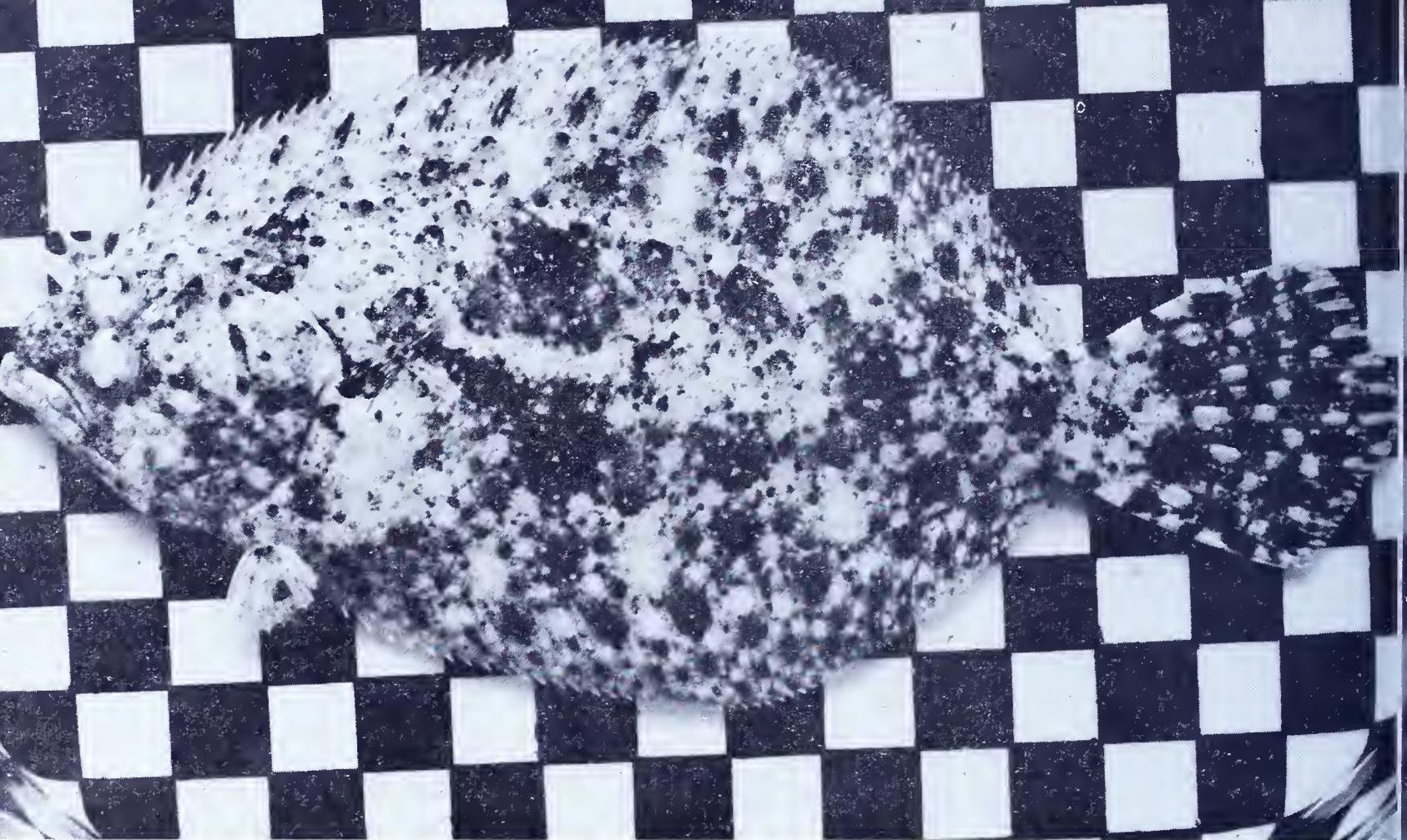
Cover art—Indian Summer by Bob Cypher

Back Cover—Fishing the Susquehanna below Clark's Ferry Bridge
Photo by Johnny Nicklas—Chief Cameraman, Pennsylvania Fish Commission

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. **NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.**



SIXTY SECONDS on this checkerboard background this flounder struggles to blend with the surface he occupies and is achieving some degree of success.

The Age-Old Magic of AQUATIC CAMOUFLAGE

By WILBERT NATHAN SAVAGE

IN NEARLY every order of life below man's level, nature uses in one way or another a wondrously effective device called *protective coloration*. In operation this reliable scheme actually depends on nothing more complex than the simple stratagem of blending creatures into their surroundings. Some forms of life have developed almost flawless hard-to-detect colors, and not the least of these marvels are the many notable examples of color adaptation among fishes—both exotic and native.

When, under reasonably favorable conditions, we find it practically impossible to follow the underwater movement of any fish, nature is clicking precisely as she should—with the advantage-balance distinctly keyed in favor of the fish. You've no doubt glimpsed elusive bass, perch, chubs, or other fishes darting from weedy shorelines to deeper water. Without the betraying aid of eye-catching motion would you have been able to spot them at all?

Actually, most outdoorsmen witness nature's tailor-

made camouflage with such regularity that all too often they totally miss its purpose. In the words of one active Keystone angler: "It seems that after a while the most extraordinary pageants of nature tend to become commonplace. We're apt to fall victim to a frame-of-mind which casually reviews even the deepest mysteries with matter-of-fact unconcern—particularly when they are to be found in our own back yards!"

"A perfect example is the vitally significant but seldom appraised presence of every-day camouflage among native fishes. Willingness to pluck a little nature-study knowledge can easily lead the way to a better understanding of the manner in which a fish benefits from bewildering topside colors. What a difference in contrast we see when a fish in normal swimming position suddenly turns belly-up. The exposed light color of the underside is at once mercilessly conspicuous! But if the fish just as suddenly rights himself and swims away, the observer has a good opportunity for a quick study of the protective natural advantages afforded by uppermost body shading. . . ."

There is something curiously automatic about the functions of aquatic camouflage—something exact and punctual, too, in its artful adaptive secrets. Fish can become lighter or darker in color in a remarkably short time if conditions dictate an urgent need for such adjustments. In crystal clear water a fish will maintain a light body color. But put him in fresh water darkened by coloring action of inundated vegetation, and he will promptly become darker. Indeed, it almost seems as if the finny creature is knowingly striving to bring himself into delicate color harmony with his new surroundings!*

One of the most graphic but little-known examples of the ability of a fish to adjust its color to immediate environmental background is the case of the rainbow trout, fresh from the water and about to be photographed in color. The color regulating mechanism of

the fish goes to work so rapidly that, if placed in a light container—such as an aluminum tub—he'll fade so fast that it is almost always impossible for the camera to record the true radiance of natural side colors. (For this and other information on fish camouflage the author is indebted to Keen Buss, Fishery Biologist for the Pennsylvania Fish Commission.)

The chain pickerel is a true master in the art of deceptive camouflage. His wonderfully confusing body trim is a misleading mosaic of mottled coloring. And the chain-like inlays make up a pattern of markings that blend perfectly with waterweeds in which the spunky fish likes to hide. Other members of the pike group also enjoy the benefits of superior camouflage design.

While it is true that nature uses a vast selection of confusing body patterns in carrying out her many camouflage projects in the fish world, the real trick up her sleeve is that she can be virtually as effective and astonishing while working with nothing more sensational than ordinary solid colors—and drab ones at that!

The plain old common sucker is a typical solid color representative. For certainly his unadorned outline is usually tough to accurately trace in the hazy-amber water of shadowy streams. Very often the shade of a sucker's back will be keyed in remarkable perfection to the very color of a stream bed and the rocks and submerged wood strewn thereon. But a sucker's body color

*With all due respect for the color-changing capabilities of fishes in general, it should in discreet fairness be pointed out here that among certain fishery biologists there is a feeling that some of the color switches among fish in very dark water may in part be due to stain of the outer body surface. This theory, however, has not as yet been proved, so for the time being we'll not stray far from the belief that changes to dark coloring among fishes in dark water is due almost entirely to pigment adaptation. Of course we do know that in the case of some fishes, food does play a direct and important part in the color degree of pigmentation.

ALBINO BULLHEADS may blend with white sand or pebbles of an aquarium but on the stream bottom the protective coloration of the kin in the middle would help him survive longer in an underwater world of color.



is never limited to the matching of background conditions in a single stream. Without visible effort he can vary the tints in his pigment supply and in a short time achieve startling agreement with any reasonable change of environment.

Another hard-to-see graduate of the School of Camouflage is the dusky-bodied bullhead. With his fins and upper barbels and side "whiskers" moving lazily, the ravenous old catfish often takes on the "mossy" appearance of a chunk of wood from which assorted water-weeds have begun to sprout. He may even sink into the ooze of a river bottom, with only his back and beady-eyed head exposed. In this position—particularly if you happen to be looking straight down—he's almost impossible to locate. Even if you get an opportunity for a side-angle glance, his advantages of immobility and blending of body color with the surface he occupies, will pose a challenge to the sharpest eye.

The common or fresh-water eel uses two types of camouflage. They're so transparent when in the young (elver) stage that "laid upon a printed page they offer practically no obstruction to reading." This, of course, renders them almost invisible to enemies and food seekers. When they're grown, the color of the eel is determined by the type of bottom on which it dwells. If a medium-brown color is called on as a means of protection, that is what the eel soon develops. If a lighter color is needed, that also can be arranged, and the color gauging processes are rarely out of fitting accord: the eel needs the right shade—and gets it. We may scorn them and regard them as unsavory squirmers, but they are well-advanced in the technique of flawless camouflage.

A color-change artist rating top plaudits is the flounder, widely distributed along the Atlantic coast, from Maine to South Carolina. With readily changeable skin pigments—yellow, brown, black, and white—

it can rapidly switch not only its color, but also its markings to match background patterns. Even when placed on a surface of glossy black-and-white squares (see photo), the adept fish will immediately go to work in a diligent attempt to blend with the spot he occupies. At first it would appear to be pure nonsense to expect the fish to start "printing" black-and-white squares on its body. But after a scant sixty seconds on the blocked surface, this clever master of color adjustment is already beginning to show actual splotches of black and white—and to a degree they are taking on the order of a pattern, particularly in the region of the tail!

When you witness the uncanny manner in which the flounder handles an "impossible" situation involving unfair sharp contrasts, then it is easy to understand how conveniently he accomplishes almost perfect color accord on such natural backgrounds as sand, clay, gravel, etc.

Whether used by common native fish or far-off bizarre ones, we do not know the full story on the "why's" and "how's" of the many complex natural camouflage arrangements. We do know, however, that nearly all fish—excluding the rays and the sharks—have tiny, star-shaped sacs imbedded in their skin. These minute cells, called chromatophores, contain pigment in their centers. There is a different pigment for each cell—red, orange-yellow, black, etc. The color may be strengthened or weakened on the fish's exterior as pigment is exuded along the arms of the star or withdrawn into the center of the cell. In the center the pigment can be compressed until it is practically invisible. The combined action of the remarkable chromatophores, plus a certain amount of immobile coloration in the fish, and you have the set of patterns the fish is capable of taking on. In waters where permanent color has distinct advantages in unchanging conditions, the pigment in many fish becomes more or

TROUT SPAWNING on a natural streambed. They have protective coloration working so well for them that even the sharp-eyed camera failed to capture their outlines in detail and could be mistaken for water-logged limbs.





FRESH-WATER EELS, transparent when young, take on dark colors in adult stage to blend with color scheme of lake or river bottom they occupy.

less fixed. Any sharply discernible change ordinarily must come about through reasonable time-lapse adaptation.

To a very great extent, aquatic camouflage seems to be balanced on the side of the hunted. Fish hawks, water snakes, four-footed predators, and man are frequently fooled by the compound mingling of protecting colors. Carp, for instance, are such good blenders that observers have told of seeing fish-eating birds completely foiled when young carp merged in a most confounding manner into their surroundings. Of course many other common fishes—both young and old, from dace to musky—daily make use of the same threat thwarting trick when with effortless facility they achieve a virtual fusion with habitat color schemes.

In the less common varieties of fish, hard-to-detect colors aren't the only benefits enjoyed by countless greedy food seekers. Some finny dwellers of lake and ocean are cleverly equipped with added camouflage accessories—such as body adornments resembling coral, weeds, worms, etc. Conversely, tipping the scale in generous favor of the hunted, we find numberless fishes—particularly the slower, smaller, and less aggressive ones—fitting so well colorwise into their surroundings that hungry but easily sighted marine prowlers may practically run their fins off trying to locate food—all the while being in the midst of piscine plenty!

When fish in dark waters (or average water, as the case may be), are observed to be wearing a nattily

proper corresponding shade, you can safely wager that the fitting color did not come about through haphazard planning. While the deeper secrets of the arrangement remain a mystery, we do know that the amount of coloration in a fish is controlled by sight. Normal body cells are sensitive to light impressions received through the eyes, and pigment color build-up or reduction is directly regulated by the critically exact process of metering light waves in a delicate eye-to-body system of transmission.

When the right color relationship between fish and habitat has been reached, the pigment controlling device suddenly trips itself out of operation. And this is the part we don't quite understand. But we do know that when the principle of function is tampered with, chaotic disorder results. Totally blind fish, unable to receive influencing light forces, turn black shortly after being denied their sight. If the right eye is removed, the *left* side turns black, and just the opposite is the case if the left eye is removed.

On and on could go coverage of the various aspects of natural camouflage among fishes. But a detailed account of all the known and vaguely suspected factors in the vital system of protection through color would require a formal treatise—and a mighty long one at that. For groping speculation on what we do not know about the subject, on a world-wide basis, would in itself fill the pages of enough volumes to stack a spacious library shelf!

A Journey With Water

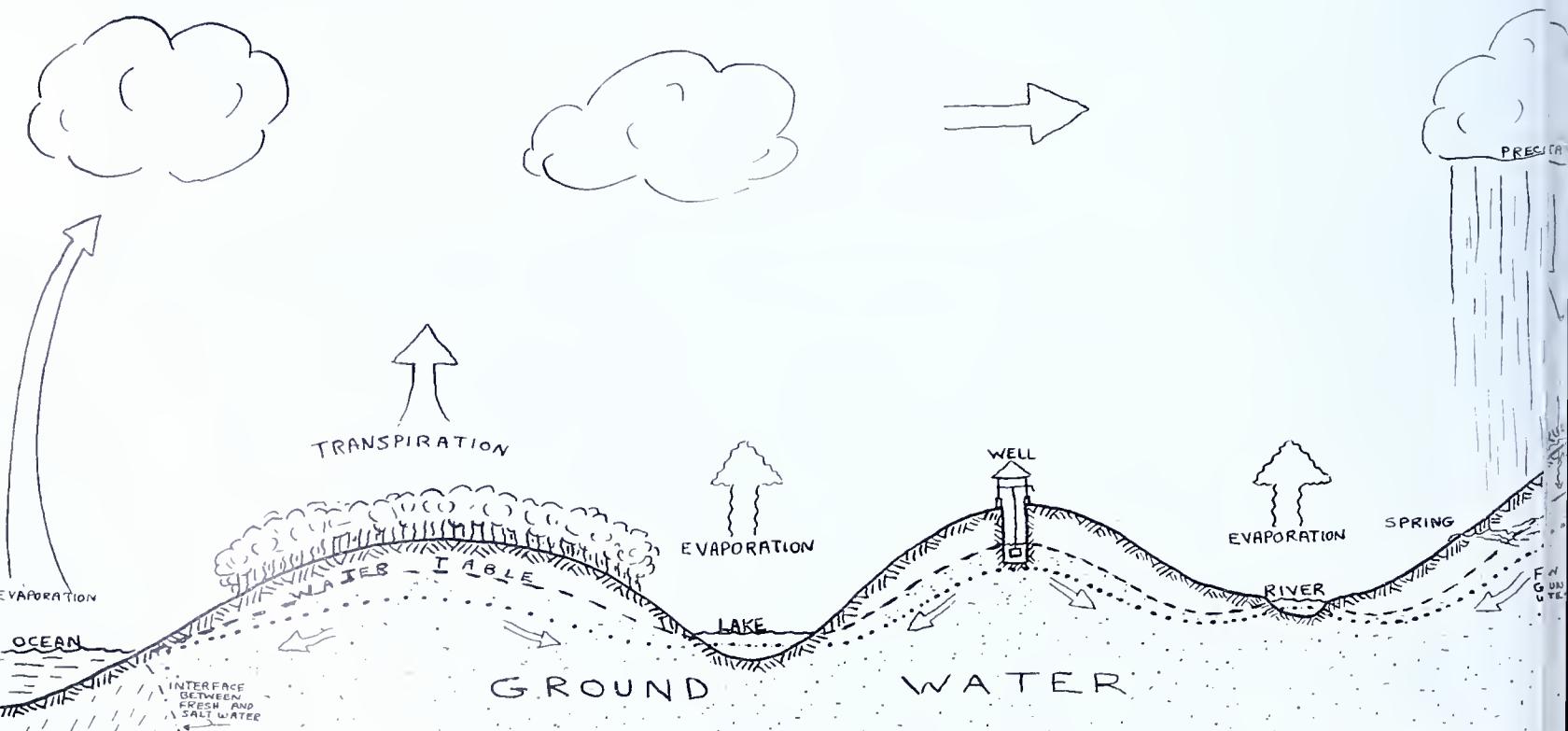
By EUGENE R. SLATICK

Did you ever wonder where all the water in a stream or river comes from? Surface runoff from rain can't account for the tremendous volumes. Nor does it explain the continuous flow during dry weather. And why is it that in some areas wells must be dug to reach water, while in other places it comes to the surface as springs? Springs *do* create streams which eventually merge together to form rivers, but what supplies water to the springs? Well, the answers to these questions have to do with ground water. But the quantity of ground water depends upon the amount of precipitation in the region. The moisture content of the air, in turn, is related to the amount of water that leaves the earth's surface and enters the atmosphere. Sound like one big circle? It is—and it's called the hydrologic cycle. Like the escapement mechanism of a huge clock, the

hydrologic cycle regulates the pace of nature. When the cycle is very slow the land becomes parched from a drought; conversely, if it speeds up flooding may result. All of us have grumbled our way through the precipitation part of the hydrologic cycle and many have waded through the runoff, but the rest of the cycle generally slips by unnoticed. Yet the whole cycle affects our lives so much that an understanding of it should be part of our general knowledge.

The simplest way to appreciate the hydrologic cycle is to follow the circulation of water from the sea to the land, through the atmosphere, and back to the sea again. Water that evaporates from the ocean's surface, and tiny water droplets tossed into the air by waves, are carried into the atmosphere by rising air currents. This water coalesces to form clouds; when certain meteor-

SKETCH OF HYDROLOGIC CYCLE showing the "normal" water tables as a dashed line. The position of the water table when it drops is indicated by the dotted line. Note the effect on the lake, well, river and spring.



ological conditions are satisfied, the moisture in a cloud precipitates as rain (or, if it is cold enough, as snow or hail).

Several things happen to rain when it reaches the ground. part of the rain falls directly into streams or lakes where it is joined by rain water which runs off the ground surface. Some of the water seeps into the ground, while smaller quantities accumulate in little puddles. (It might be well to mention at this point that water is the principal sculpturer of the earth's surface, but this interesting role of water is not usually included in a discussion of the hydrologic cycle.)

Most of the precipitation in an area—indeed, almost two-thirds of it—is eventually returned to the atmosphere by transpiration, which is the process by which water vapor escapes from plants, and by evaporation from the ground surface, ponds, lakes, etc.

Some of the water that soaks into the ground is held near the surface where it is utilized by plants. Water that percolates deeper adds to the amount of ground water—a water-saturated zone beneath the land surface.

If you were able to slice through a large section of land you would notice that the water table (the uppermost part of ground water) somewhat follows the configuration of the land, that is, the ups and downs of hills. It doesn't, however, follow it *exactly*; the water table doesn't quite make it to the crests of hills, and it often flows out in valleys and depressions, forming springs, streams or lakes. The surface of a lake or river is comparable to the water table; in these instances the top part of ground water is actually above the surface of the land.

Springs have long been a source of interest and fascination; their origins have often been shrouded with mystery. Basically, though, springs depend upon two things: ground water and rock structures. When ground water flows through cracks in rock for a long period of time it carves well-defined channels; when a channel leads to the surface a spring is formed. Springs usually form on hillsides or in valleys, but rarely on mountain tops simply because water flows from higher to lower elevations.

Since ground water moves it continuously depletes its overall storage capacity. Consequently, if ground water is not replenished by rains the water table drops. In effect this means that the water table moves farther away from the surface; channels which once formed a spring now only tap dry rock; lake levels fall with the dropping water table; water wells become merely holes in the ground. Rivers and streams also shrink in size, but as long as they are able they flow toward the sea.

Thus, we have outlined one journey of water as it follows the hydrologic cycle. You can blame the hydrologic cycle for muddying or drying up streams, or for cancelling your picnic. But you can thank it *for* streams and forests, and the cool, clear water of a mountain spring.



My Favorite Fishing Spot

By M. G. NICE

If you have a favorite fishing spot right around home or anywhere in Pennsylvania simply write a letter telling us where it is and describe how and why it appeals to you most. Photographs in black and white will be appreciated.



CHESTER-OCTORARO Reservoir Dam is spanned here by Route 472 between Quarryville and Oxford. Camp Tweedale, Girl Scout Camp, is nearby.

LIKE most fishermen, I spend too little of my time on weekends fishing, and too much of it during the week just thinking about it. I certainly wish I were able to reverse this procedure! Then, too, like most fishermen, I have a favorite fishing spot that I visit more often than any other place. I would like to acquaint you with this spot of mine.

Very little has been written about the fishing waters in my area. Since these places are not fabulous "hot spots," naturally they will not attract the attention through articles published in nationally known sporting magazines or by enthusiastic angler response, as these other places have done. Perhaps writing about these local areas will promote new interest and will stimulate an increase in angler response. I feel a renewed appraisal of the fishing waters available in my area, that is, in Delaware and Chester counties, would be of value.

My favorite fishing spot is within a half hour's drive of my home. It is located on the outskirts of the Borough of West Chester, in Chester County, Pa. The West Chester Impounding Dam furnishes not only the community water supply, but also provides excellent bass and bluegill fishing for the local anglers.

This reservoir is man-made. It is a beautiful body of water, lying in a small ravine, framed on three sides by trees. The impounding dam itself lies parallel with the one road leading to the area. This high, earthen embankment obstructs a view of the water from this last side. Since the reservoir is so well hidden from view, the quiet atmosphere of the area is preserved.

The main entrance to the reservoir is located at the upper end of the dam breast. As you walk through the gate, a panoramic view of the lake unfolds before you and it is a magnificent view. In the distance, the spreading branches of the tall trees growing close to the water's edge seem to rise from the watery depths of the reservoir itself. I have often stood waist deep in the water near those trees and breathed in the lake's beauty. I could observe the smooth, unruffled surface of the water spreading all around me, or watch a wild duck floating slowly across its surface. I could see a fellow fisherman waist deep in water, too, probing the depths around him with fly and line trying to lure Mr. Largemouth Bass to it, or watch the bees taking nectar from the honeysuckle blooming on the bushes that grow along the water's edge. All these are familiar sights at the reservoir.

Fishing at the West Chester Reservoir is by permit only. This permit may be purchased at the Borough Hall or obtained by written request including the permit fee made payable to the Secretary of the Borough Council of West Chester. Each fisherman is given a badge with his permit. This badge must be worn whenever you fish at the reservoir. The permit is valid for one year.

The area is privately policed. Boating is prohibited, as is



BEAUTIFUL FISHING WATER, the reservoir dams waters of Octoraro Creek and its west branch. Boats are not allowed but wading is permitted. Fine largemouth bass and pan fishing here are popular with southern tier county fishermen.

ice fishing. The reservoir is open or closed in compliance with Pennsylvania Fish Commission fishing regulations.

Since the use of boats of any kind is prohibited, all fishing is done from the shore or near the water's edge by wearing hip boots or waders. There is no imposed restricted shore line area around the entire reservoir. Any restrictions would be those encountered from natural obstacles, such as depth of water, or dense foliage of trees and bushes growing along the shore's edge. Obviously then, wearing waders allows the greatest freedom of movement and permits the closest approach to deep water and lunker bass.

The wader-clad bass fisherman quietly slips into the water and begins a slow tour along the shore, casting his lure into deep water hoping to attract a striking bass. By the time he has made two or three casts, probing the water about him, he has slowly moved forward into a new area. He pauses at one spot only if he has a strike or catches a fish. In this fashion the bass fisherman seeks out those restless fish.

Bass fishing is usually excellent at the reservoir. Largemouth bass spawn and multiply naturally here. I have seen some of the lunker bass caught in the reservoir and they have reached sizable proportions, weighing up to seven or eight pounds. I do not belong to the elite ten per cent group of fishermen that catch ninety per cent of the fish. I cannot boast that I caught 139 bass ranging in size from nine to eighteen inches as did one expert who frequents West Chester Reservoir. But, I can say there weren't too many times that I left the impoundment after a day's fishing with an empty creel.

The reservoir not only provides excellent bass fishing, but also a wonderful haven for kids to fish for bluegills. My son has a great time catching these hungry pan fish. Even though we have caught bluegills weighing a pound or more, my biggest battle is not with a hooked fish, but with my son. I have a hard time trying to persuade him not to take home all the bluegills he catches.

Many times I have read articles describing a new fishing location in our state and I was inclined to look at them with green eyes. I wanted fishing waters like those described in the articles near my home. Yes, their grass looked much greener than mine did. As I gained angling experience and skill, I no longer believed the fishing in these distant areas to be that much better than some of the fishing waters in the area where I live.

Along with West Chester Reservoir as one fishing location, there are others such as Springton Reservoir in Delaware County and Octorara Creek and Pine Grove Reservoir in Chester County that offer fine fishing for the local sportsman and can be reached without too much effort in very little time. I think an increase in angler response in my area is bound to occur when prospective fishermen are made aware of the fishing opportunities in their own back yard. Why don't you try it and find out for yourself?

THE LUCKY BONE

BY BILL WALSH

▲ While trolling for grouper off the Bahamas several years ago, we learned that barracuda (a glamor fish as far as we were concerned) were considered "nuisance fish" to be hurled back into the ocean or cut into strips for bait. On Lake Erie, the walleye and bass troller regards the numerous and cooperative sheepshead (fresh-water drum) in the same light—something to be removed from the hook in a time-consuming procedure that could better be spent enticing the more popular fish.

Just as we thrilled to catching barracuda, however, many anglers regard the sheepshead as a determined and dogged fighter. They enjoy the scrap he puts up—especially on light spinning tackle. Although he won't jump, he will dive and bore with rugged persistence that will satisfy any angler who is as much interested in "kicks" as he is in taking fish home. Although the average fresh-water sheepshead in the Lake Erie fishery is about 15 inches long and tips the scales at about a pound and a half, we have caught them in the eight to ten pound class. Any fish with this amount of muscle will give you a fight.

Once you hook a sheepshead you will probably land him—unless you've allowed a weakness to develop in your tackle. Jocularly called a "Roman-nosed trout," his mouth structure—all puckered up like he'd just sucked a lemon—really surrounds the hook when he takes your bait. He will take your softshell as readily as a bass and he will devour your walleye-intended nightcrawler draped on a hook behind the traditional June bug spinner. He will, on occasion, also latch onto a trolled plug.

Folks who poke around old Indian camping grounds report that in earlier years sheepshead of between 100 and 200 pounds were taken. The Indians apparently regarded the throat bones, the molar teeth, and the "Lucky Bones" from the ear as good medicine. It is from remains of these bones and teeth that the size of the primordial sheepshead is estimated.

Today's angler can extricate the "Lucky Bone" from a sheepshead by cutting into the head between the line of the eye and the gill cover. It is a pearly blue-gray stone—hard as a rock—which makes an interesting memento or conversation piece. Few anglers have ever seen one. In the fish it probably has something to do with balance. In the angler's pocket, if it has anything at all to do with "luck" it has not yet been established whether this luck will keep other sheepshead from cutting into his bait supply while he's trolling or whether it guarantees that more will single him out.

Possibly it depends on whether or not he wants to catch more. At any rate, the sheepshead is shameless concerning his reputation as a "non-sport" fish and will battle you down to the last inch as though he is totally unaware of his undesirability.



Boating



OCCASIONAL STOPS will make a long boat trailering trip more pleasant. There are plenty of worthwhile attractions along almost any highway. Even a quick stop at a roadside picnic area for a relaxing cold drink and a few minutes off the highway will be welcomed, especially by the youngsters.

Stops Add Fun to Long Boat Trailering Trip

Pulling a boat trailer a couple hundred miles to enjoy a single day of boating has become a rather common practice. With car and trailer in good mechanical condition, it's really quite simple. However, like any long car ride, a lengthy trailering trip can be made more pleasant if frequent stops are made at interesting spots along the way.

Most boatmen are interested in taking the fastest, shortest and most direct route in getting to their favorite boating waters. But on a long trip, a few minutes spent at a roadside park while you have a sandwich and relax over a cup of coffee, isn't a bad idea.

An occasional stop, says the Evinrude Boating foundation, will be especially welcomed by youngsters in the family. It gives them a chance to stretch their legs and release some of their seemingly endless energy. Historical markers, wildlife parks, tourist attractions, or just pleasant scenery are a few of the things worth stopping to see.

Today's boat trailers are practically trouble-free, but while you are stopped it's a good idea to give your trailer a quick check. Make sure the hitch is still tight, the hold-downs are secure, the safety chains connected, and the tires inflated properly.

To make these extra stops and still get in a full day of boating, it may be necessary to start a little earlier.

Mix Outboard Fuel Properly for Best Engine Performance

Check the oil? Not with your two-cycle outboard. Instead of having a crankcase that has to be filled, changed and checked frequently, the powerhead of a two-cycle engine is automatically lubricated by the oil mixed with the gasoline.

It's important, however, that this mixture be correct. Every manufacturer includes a set of instructions with each new motor sold and it's wise to follow them closely. But here are a few fuel tips from Bill Smale, Evinrude Motors' chief engineer, that apply to all two-cycle outboard motors.

When filling an empty fuel tank, pour in about one gallon of gas and add the recommended amount and type of oil. Then fill the tank with gasoline. This allows the fuel to mix properly. When adding fuel to a partially filled tank, first estimate, or measure, the amount of fuel already in the tank. Add the correct amount of oil and then put in the gas. Your estimate should be as close as possible, for if you're skimpy with the oil, the engine will not be lubricated properly. On the other hand if you put in too much oil, the engine will smoke and the spark plugs will foul causing poor engine performance.

Trying to save fuel from one year to another is false economy. Fuel left over at the end of the season should be thrown out. Old gasoline is often contaminated with varnishes and has lost its ability to vaporize properly. If used, hard starting and a clogged fuel system can result.

Some families even enjoy starting at the crack of dawn and then stopping off at a roadside picnic area to eat a hearty outdoor breakfast.

Whether you're an early bird or a late sleeper, you will find that a few extra stops can make a long trailering trip more pleasant. If nothing else, you'll arrive relaxed and, as a result, enjoy your boating even more.





Tips on Buying Used Motors

With more veteran boatmen moving up to larger boats and motors, plenty of good used boating equipment is now available. Buying your pre-owned equipment from a reputable dealer is best, however, since you'll know it's been carefully checked over to give you many hours of carefree enjoyment on the water.

Here are a few tips to keep in mind when selecting a used outboard motor to measure its relative worth:

Compression—Grasp the starter rope and pull the motor over, checking the "pull" and "bounce" as the motor turns over.

Crankcase bushing—Check for excessive dirty oil accumulations on the armature plate; an indication of faulty upper bearing assembly.

Cylinder condition—Remove spark plugs and by using a pencil flashlight peer into the cylinder head, checking for excessive carbon accumulation which will ultimately affect the performance of the motor.

Propeller bushing—Exert up-and-down pressure on the propeller shaft and look for seepage around the propeller shaft seal . . . excessive up-and-down play or seepage indicates a worn bushing.

While the motor is idling, check wiring for cracks in insulation, abrasions and breaks; fuel connections and gasoline line for leaks; and the smooth running of the engine.

If you have the opportunity, take the motor out for a run before you buy it to check acceleration, idling and general performance.

Water Is Good Photo Subject

Taking pictures from a boat poses some problems not encountered by the camera fan ashore, but the results make it well worthwhile. Here are a few tips that should help you in capturing the highlights of some of your days afloat.

Adjust your exposure to compensate for the greater reflection of light from the water. Use a filter to overcome the additional ultraviolet rays present over bodies of water. To catch the action of water and spray, set your shutter at a fast speed. Keep your equipment dry by wrapping it in a plastic bag when you have it aboard.

Time and Companionship Are Gifts

A Boy Treasures Most

Shiny toys that money can buy are soon outgrown and forgotten by a young boy. But, Dad, your son will never forget a day that you give him.

Sure, you're busy. On Saturday morning the grass needs mowing, the car has to be washed, or maybe the garden could stand a little weeding. Perhaps it's your day for golfing. But think for just a moment—when it comes right down to it, are any of these things so important they can't be overlooked occasionally to give the day to your growing boy?

In the hubbub of even the most hectic workaday routine, there's got to be some time set aside for every father and son to get together, alone, to really become acquainted. You know your boy, you say. Do you? How long has it been since the two of you romped together, went fishing or sat down for a "man to man" talk? Growing boys have a habit of changing their ways and ideas pretty fast. And during this time you, Dad, are the only one who can shape your son into the kind of man you want him to be.

Devote a few special hours to your boy each week. Maybe they can be spent dangling a couple of fishing lines over the side of a boat, or lazily cruising a meandering river while you unravel some of the secrets of nature a young boy finds so confusing.

All through life the boy, and later the man, has a natural desire to want to make something go. At first it's a stroller, then a tricycle and eventually an automobile. But somewhere in the cycle is the desire to drive a boat. With you sitting alongside, there's no reason why your young boy shouldn't be given a turn at the wheel and a chance to be "captain." No doubt, it will be an experience he'll never forget.

Why not give it a try, even if just this once. Put everything else aside and tell your boy that next Saturday will be his day. And when you see that gleam in his eyes, you'll agree—he'll never appreciate anything as much as a day that you give him.

Color Tells Depth

River depth is usually indicated by the color of the water. In general, deep water is dark and shallow water is light in color. In a straight stretch of river the water is usually deepest in the center, whereas in a bend you can expect the deeper water to be to the outside.

You may have the right-of-way rules of the water down pat, but another boatman might not. Don't gamble that the other fellow recognizes your right-of-way on the water . . . slow down!

New Access Dedicated on Raystown Dam



MAIN SPEAKER at dedication was Albert M. Day, Executive Director of the Pennsylvania Fish Commission.

A BOAT LAUNCHING AND FISHING ACCESS SITE on Raystown Dam in Huntingdon County, recently completed by the Pennsylvania Fish Commission, was dedicated July 25. The new facility includes a boat dock for loading and unloading purposes, parking space for more than 75 cars and trailers, and sanitary facilities, according to Cyril G. Regan, chief of the Commission's Real Estate and Engineering Division.

Access to several miles of excellent boating and fishing waters is being made available to the public through this site. The area also provides 1,350 feet of shore line fishing. All improvement work on the area was done by Fish Commission personnel under the supervision of Edward Miller, Chief Engineer.

The 10½-acre site is located approximately 10 miles from Hesston.

Albert M. Day, executive director of the Commission; Commission President Maynard Bogart, of Danville; and Commission Vice President Joseph M. Critchfield, of Confluence, participated in the dedication.



CUTTING RIBBON officially opened new access area. Those participating, left to right: Albert M. Day, Executive Director, Pennsylvania Fish Commission; Mrs. Bernice Corbin, property owner; Regional Warden Supervisor Harold Corbin; Commission President Maynard Bogart; Commission Vice President Joseph M. Critchfield; and Dewey Miller, member, Pennsylvania Game Commission.

ADDRESSING dedication gathering is Commission Vice President Joseph M. Critchfield.





Raystown access area site as work was begun.



After completion of construction.



One of finest launching ramps in the state pleases boaters.

Scenes of beautiful waters of Raystown Dam, a fishing and boating paradise in Huntingdon County.



Go Light for Pike

-KEITH SCHUYLER

A quick look at a few facts will show why old yellow spots comes in the small, economy size in heavily fished waters. But, a longer look will show how you can have the maximum in fun with pike no matter how short the distance is from his ugly snout to the tip of his tail.

The answer to pike pleasure is to travel light. Spinning offers the best opportunity to produce the most excitement in pike waters, with very light casting equipment a fair second. A fly rod would be even better, but the manner of fishing for pike precludes the use of one except in unusual cases. And, should a really big fish happen along, the angler may come to grief trying to land it. Although it is not recommended for use on pike, I have known anglers who landed some whopping big northerns that banged into a fly-rod lure meant for other fish.

As a fighting fish, the pike stacks up much better pound for pound than it does inch for inch. For it requires a lot of length to produce much muscle. Get that length coming toward you, and it is tough for any but the larger pike to get a toehold in the water. Even the really big ones often come in like a log until they see the boat or net. Consequently, the pike's reputation as a fighter has suffered from reports of piscators who never give him a chance to do battle. These same fellows, who think nothing of using a 5X tippet against a two-pound brown trout, will offer a pike no heavier a mouthful of metal on a wire leader attached to a 20-pound test nylon line.

There is no attempt here to place a pike in the same class as trout, but it is an effort to give the nasty natured cannibal his just dues as a tackle buster.

A light rod and line, which allows a pike to have his head, makes angling for him a real pleasure. Not only will the Slim Jims keep the line singing, they will frequently dance a tune to the music. The irksome sting of a tiny lure in a pike's lip does little more than feed his terrible temper. And, what is sweeter to a true angler than to have a mass of mad muscle slashing up the slough on the end of a line which might break at any moment!

I never had a pike take to the air until I started fishing for them with light tackle. Previously, the fish were always fighting against the pull of the line as I dragged them through the water. Now I fight against the pull of the fish as they try to drag me through the water. And, while most of my associations with pike on the little lures with light tackle have been with juveniles of the species, up to eight pounds in one bundle have come my way. This is by no means a big pike but it is certainly a big thrill on the end of a sliver of glass with nothing more than an oversize horsehair holding us together.

To those used to casting or trolling club-sized plugs and heavy spoons for pike, the question immediately arises whether or not pike will interest themselves in spinning-size lures. They will. One of the best catches of pike in the seven- and eight-pound class I've ever made came on a trout spinner I use in Pennsylvania streams. They were only among the largest. Many, many more pike in the four- to six-pound class took the little spinner. True, pike were plentiful in this particular water, but the spinner took the largest pike competing against standard casting spoons and plugs.

Choice of equipment today allows the use of the smaller casting lures with spinning tackle. Keep in mind always that it is the angler himself who can make the difference between a good lure and a bad one in the way he uses it.

Little lures actually increase the chance to score against pike, especially where the fish hug the shore line or work the shallows. Heavy lures must frequently be drawn too fast to give the pike

a chance to make up his mind. The little flashers can be bounced around in a comparatively few inches of water, giving a reluctant fish a chance to say grace and tuck in his napkin before trying to gulp the bait fake.

This business of slow presentation of a lure for pike is worth special comment. Too often anglers work spoons much too fast. With rare exception, a slow retrieve will bring best results. This is especially true with the little lures normally used with spinning equipment. Equally important, a maximum of action at the beginning of the retrieve is frequently the margin between success and failure.

Repetition of cast is another clue to success in pike fishing. Many times it is the second, third or fourth cast in the same direction which finally produces results. The smaller the lure, the more important it is to make sure that any pike in the area have a chance to see it. It is much better to spend a half hour working a bay which looks good than it is to cover a half mile of shore line in the same time.

Those who may be inclined to go along with what has been said to this point might still have a question that blocks their full acceptance of it. What happens when you snag onto a really big fish? Will the little hooks hold?

The answers to these two questions are directly proportionate to the skill of the angler. Barring the chance that the pike might become fouled in heavy weeds or under a sunken log, there is no reason beyond the usual ones that the fish should not be brought to net. Whereas the larger hooks on casting lures often take purchase in the thin cheek or jaw parts of the fish, and wear holes through which the barb can easily slip if slack line is allowed, the tiny trebles usually attach themselves to the tough lip or jaw hinge.

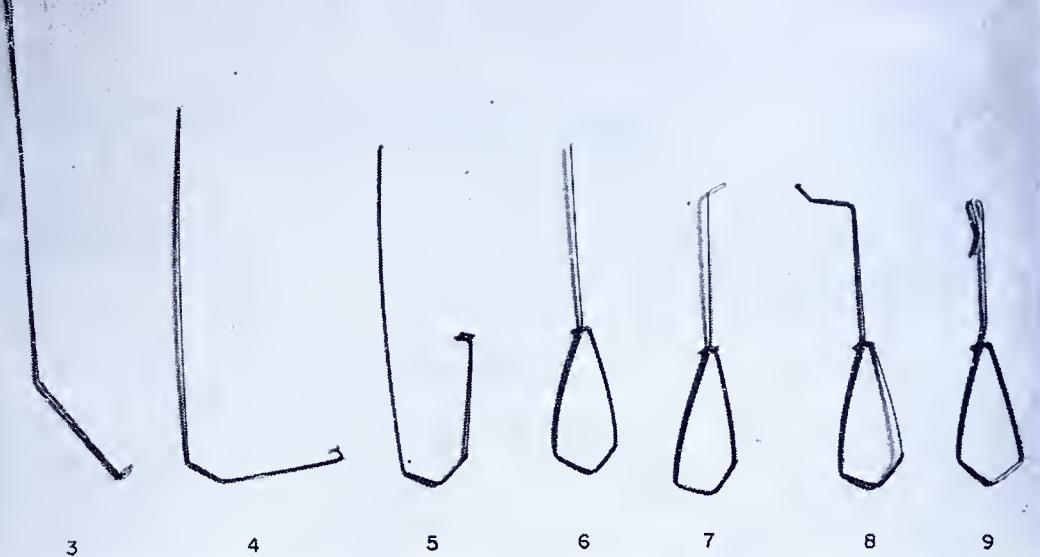
Personally, I don't recommend very light tackle in water littered with debris in the form of heavy grass or brush piles and logs. These conditions more frequently result where man-made lakes have been created. Even natural lakes usually have a number of windfalls to occasion a certain amount of hazard. Fitting tackle to the water is an individual proposition based upon good judgment. I know some excellent pike water where a fellow would look foolish with light tackle. Yet, other lakes are clean enough to permit the use of featherweight equipment on the biggest fish available.

There is no intent here to carry this business of light tackle to the point of foolishness. Pike are wicked fighters when given half a chance, and you will not be able to prevent their wild rushes with a thin thread. Either there must be sufficient room to play the fish to a happy conclusion, or there must be enough strength in the tackle to confine its activities to an area where the same development can be enforced.

In the matter of lures, the best procedure is to stick to those which produced best for you in casting size. Most of the better ones are produced in spinning models. Among them, of course, is the red and white spoon, always a killer. Spoons of all types are among the best pike lures produced. Spinners, either alone or with streamer attachments are fine. Plugs are fair. Among the best that I have found are the ones with the metallic finishes.

But, no matter what the lure, you will come away with a new respect for *Esox lucius* on light tackle. Whether or not you catch big fish becomes unimportant. By fitting your tackle to the fish available you will find the game just as satisfying and thrilling regardless of the number of pounds you are leading around.

Your sport is measured in the time it takes to bring a fish to net; not in how long it hangs over your fireplace.



'S IN FASHIONING this sinker hook. 1. Four-inch wire with "U" bend. 2. U-bend turned hook. 3. First kink. 4. Second kink. 5. Third kink. 6. Closed hook. 7. Bend for foot. 8. Extended bend for foot. 9. Bend to form clip.



A PAIR OF long-nose pliers will place the bends nicely in the .024-inch stainless wire.

Tackle Tips

QUICK CHANGE SINKER SYSTEM

By DON SHINER

CHANGING sinkers to meet varied conditions found astream can be a problem. This is especially true when removing a number of split shot from the line, or when changing from one size lead weight to a size larger when trolling. From Leo Schoenig, of Pittsburgh, comes an ingenious solution to this sinker problem.

Leo has designed a sinker hook to secure a lead sinker to the fishing line, yet the hook permits the line to run freely through the eyelet at all times. This can be important when bait-fishing for bass when a husky bronzeback seizes the bait and runs. Then, when changing your style of angling from bottom to drift-fishing, this little clasp prevents damage to lines when removing split shot or other types of heavy sinkers. The sinker can be put on again or taken off again quicker than you can say "scat."

Leo's sinker hook is made from .024-inch stainless wire. A four-inch length of wire is bent in various steps to form the clasp. Long-nose pliers become the best tool for fashioning this sinker aid from the stout, rust proof wire.

The base of the clasp is unsnapped like a safety pin to hold a bass-casting or other type sinker. Another clasp can be fitted with one or two heavy BB-shots or even smaller size weight. These are tucked away in the tackle box until a sinker is required. At that time, the monofilament line is slipped under the spring clip on the upper section of the clasp and, in Leo's words, "You're in business to fish on the bottom or gain more casting distance."

This "quick change sinker system" has real merit, and will play a most helpful role in smallmouth bass, trout, carp and sucker fishing. Leo suggests that you experiment with this little



THE COMPLETED sinker hook with sinker in place and clasp snapped over fishing line.

sinker aid and fill the day with more fishing and less fussing when changing, untangling or removing sinkers from your line.

When Leo first demonstrated this quick-change-sinker-clasp, I encouraged him to go into production and market this product. A package of three or four would sell readily to anglers. But he would have no part of this suggestion.

He answered, "To put them on the open market takes time and an endless amount of effort, for which I am not suited anymore. When a person reaches his 70th milestone and enjoys fishing as much as I do, then it would be almost a crime to make money for a thought that can be shared with others. I have passed out quite a number of these clasps, and feel it is far better to assist others and make friends than to make money for a simple gadget such as this. It puts one on a better footing in life and puts his mind at ease."

I can't help feeling that Leo Schoenig has developed a wonderful philosophy toward life as well as a fine little fishing aid!

The Greener Grass

By W. T. PATTERSON



OWEN P. FOX

The old adage, "the grass is greener on the other side of the fence," was without a doubt written with fishermen and hunters in mind . . . especially the fishermen. To paraphrase—"Breathes there the fisherman with soul so dead who never to himself hath said, 'the fishing must be better in some other state or region.'"

Yes indeed! I've made five trips to Wisconsin in search of a monster muskellunge. Canada has been graced with my piscatorial presence and the now famous waters of Kentucky and Tennessee have been figuratively lashed into a froth with countless casts and hundreds of fishing hours, but when all is said and done I'm glad to be back on the waters of the Keystone State.

Try our muskellunge waters in western Pennsylvania for a couple of weeks with the vim and vigor you put forth on an out-of-state trip and you will be in for the surprise of your fishing lifetime. Especially if you confine your fishing to late June or September and October. We too have produced muskellunge in the thirty- to fifty-pound class, but they take the same amount of hard work and time that you would spend elsewhere on a fishing vacation.

What about our walleyed pike and bass fishing?

The Outdoor Writers of America voted the Dale Hollow Waters of Kentucky and Tennessee as the outstanding bass and top-notch walleye waters of the country. I wonder how many of these writers have spent any concentrated fishing time on the drainage waters of the Susquehanna, Allegheny or Delaware Rivers, or on Pymatuning Reservoir or Lake Erie? True, it is doubtful that we will break any world's records on walleyes and smallmouth bass but these species of fish are found in abundance in all of the previously mentioned waters and they are of creditable size. There are walleyed pike in the ten- to fifteen-pound class in our state waters and smallmouth bass in the five- to eight-pound class. Show me a walleye spot that will equal the production of that where the Allegheny River and Tionesta Creek join and I'll admit defeat, but until then I will maintain that a concentrated fishing effort in your own "back yard" will produce fishing that will more than satisfy your expectations.

In the realm of northern pike we must award our medals to Canada and Minnesota, but only with reluctance. Of late, the northern pike have been appearing in ever increasing numbers and size in French Creek, Sandy Lake, Conneaut Lake, the Allegheny River and Sandy Creek, in addition to Erie Bay. You can take twelve- and fifteen-pound northerns in our waters and there are undoubtedly some in the twenty-pound class and upwards. True, they are not as common as in the waters of Minnesota, Canada, Michigan and Wisconsin, but they are here! I wonder just how many Pennsylvania fishermen really devote much time to northern pike fishing? Again, may I suggest that a concentrated effort on this species in the aforementioned waters, in the western part of our state, will produce some surprising results.

What about trout fishing?

Well, if you are the type fisherman who fishes for meat and moans about the poor stocking then there isn't much use in concentrating on our trout waters. On the other hand, if you like to fish for trophy size trout, or for the sport of fishing, then we have just what you desire in the way of trout fishing. A trout fishing trip to the Fish Commission's fishing waters on Young Woman's Creek in Clinton County will leave you with little desire to fish anywhere but on these waters for your trout fishing pleasure.

If you are after trophy sized trout then put away all your newfangled spinning lures and fancy "doodads" and get out the old minnow bucket and start spinning a minnow in the twilight and hours of darkness. You will not break any world's records, but we do have plenty of brown and rainbow trout feeding at night in our recognized trout streams that will weigh in at eight and ten pounds.

What else does the Keystone State have to offer the "home-bound" angler?

If it is a fight you want without the spectacular aerial display of the snook or smallmouth bass then let me suggest that you will get the battle of your life from our lowly carp. Hold it! Uncurl that lip and lower your nose just a trifle. I'll throw a dry fly with the best purist and flip a spinning lure with the most avid addict of this branch of fishing, but for a thumb-burning, rod-bending battle I will take a ten- or twelve-pound carp over a muskellunge any day of the week. True, there isn't much honor in landing a carp, but I have just the faintest suspicion that most fishermen who malign the carp have never handled one on a twelve-pound test line and light action casting rod or a spinning outfit.

If you really want to test your skill and develop a case of "miner's wrist" try a ten-pounder on a fly rod! So, if it is the sport of playing a fish that you want then we've got all the action you will care to handle in the controversial "import."

Let me add, if you are too highbrow for the carp then apply the same tackle to the channel catfish of our streams and lakes. Either species, carp or catfish, will leave you rather limp at the end of the battle and the catfish is delicious eating without the celebrated "pine plank" formula for the carp. In fact, the carp, particularly the roe properly prepared, makes a welcome addition to any table.

Now, Brother Angler, I do not have any resorts to wager on your piscatorial success, but of this I am certain . . . dollar for dollar, mile for mile and hour for hour you will have just as good, if not better, fresh-water fishing in your own state if you will give it the same concentrated effort that you expend on those out-of-state jaunts. If you don't believe me then come along to Timbuctoo this summer or fall. Yep! I'm still after that big musky, but one thing is certain . . . I'm always glad to be back!

Youth Outdoors

CANOE ADVENTURE

By THAD BUKOWSKI

It was only by chance I met the Penn State Outing Club (Scout Post No. 32) one day along the Slippery Rock Creek, one of Pennsylvania's most beautiful but also most treacherous streams.

Though within 15 miles of New Castle and less than 50 miles north of Pittsburgh this turbulent creek drops off at a rapid rate along its course amidst giant boulders. Its indescribable beauty is still unconquered.

The lure of adventure was undoubtedly behind the Outing Club's desire to "run" the course of the creek with their canoes.

While making the rounds to check trout fishermen as Outdoors Writer for the New Castle News, I came across the club along the stream's course. They had traveled over 300 miles from State College, Pa., to the creek. When located at the Heinz Camp Bridge, along the creek's lower stretches, they declared they had enough adventure for one day.

Three of the canoes with their occupants flipped completely and were swamped along the course of the dangerous rapids. No one was hurt. All wore life jackets.

"We have been doing this on various streams over the state," said Tom Southworth, one of the canoeists, when asked why the group was at Slippery Rock Creek.

"We camped the night before at the Bucoco Scout Camp near Harrisville, Pa., then started on the creek at 10:00 a.m., finished at 4:30."

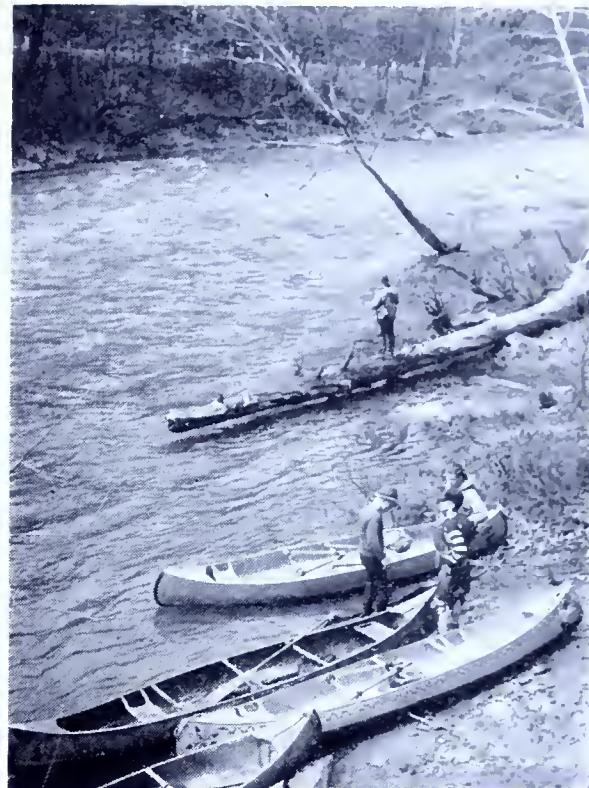
It was the toughest canoe trip the group had ever made.

According to Dave Guss, one of those upset, creeks are classified from number one to six with number six considered impassable for canoeing.

They rated the Slippery Rock No. 5 after the finish of the journey, with good reason. A number of fishermen helped them fish out their paddles and right their craft along the way.

Mac Heebner, another member, said the fivesome came to the Slippery Rock after an eight-man rubber raft group from Pittsburgh informed them of the difficulty of the waters between Rose Point and Heinz Camp along the creek. Much of this area includes the recently created McConnell's Mill State Park.

Only spot where the group made a portage was at McConnell's Mill Dam over which water spills dangerously.



PADDLE BREAK along the Slippery Rock.

All five agreed this stretch of the Slippery Rock was by far the most beautiful stream they had ever seen.

One of the five adventurers, Dave Kurtz, who is doing graduate work in electricity at Penn State, made the journey with one leg in a cast. He broke it the previous winter in a skiing accident and the cast was still on.

The young adventurers go on a trip every weekend. They have already made journeys on the Loyalsock, Black and Red Moshannon, Fishing Creek and the Kish.

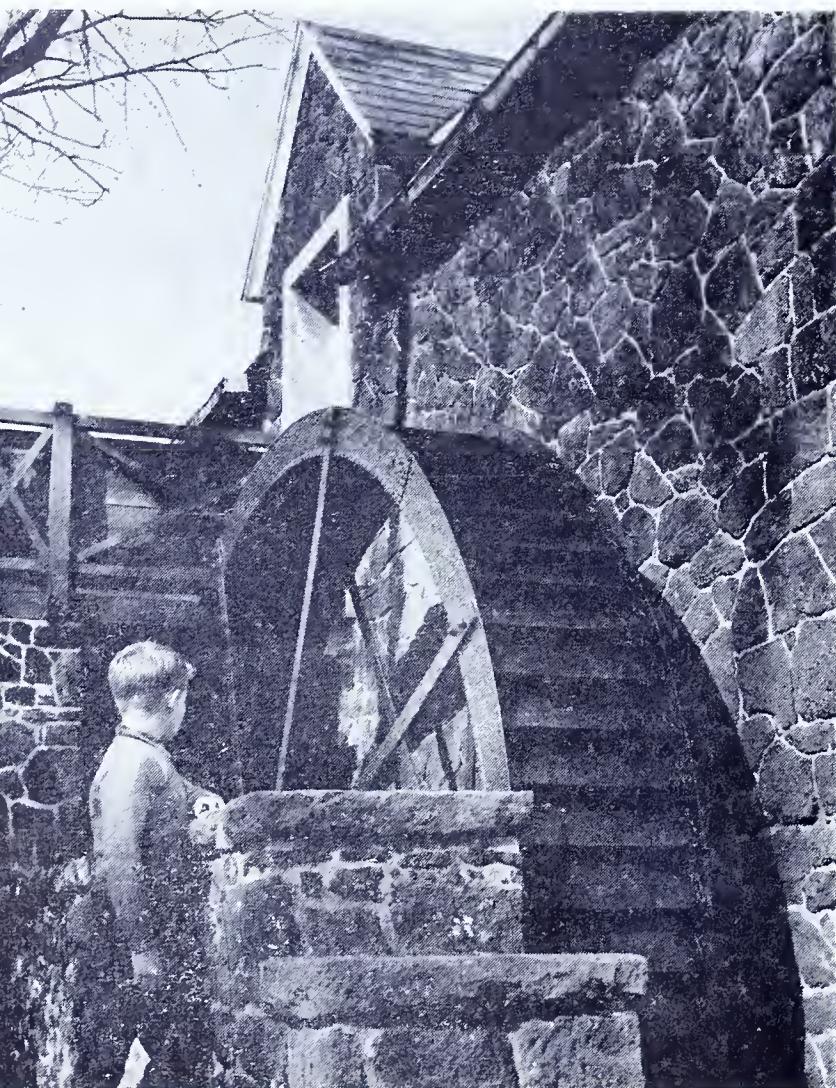
Adviser for the group is Tom Smythe, who is an assistant professor in agronomy at the school.

OUTDOOR BOOKS

All About Camping by W. K. Merill. The Stackpole Company, Telegraph Press Building, Harrisburg, Pa.; 1962. Price \$3.95.

Despite the fact that this book is somewhat slanted to the pack horse, back trail camper, I found much of interest to the one- or two-nighter of these parts. The author, a park ranger since 1927, served with the Forest Service and the California Department of Fish and Game.

The book includes a subject close to my thoughts when it gives facts and advice on auto and trailer camping, an outdoor adventure ballooning fast on the American camping scene. In addition I find—canoeing and camping, hiking, saddle and pack-outfit camping, desert and snow camping, trail craft and pathfinding (took me back to my Second Class Scout days); camp cookery (some good, some bad, some indifferent as camp cooking goes), packaged foods, equipment check lists, first-aid survival, safety and how to handle fires. Nice sketches throughout. Should sell at this popular price.—G. F.



OLD WATER WHEELS much like old covered bridges are slowly passing on in a new age of power and thrust to the stars.

Water Wheels

I like water wheels and old mills, and I am always on the lookout for them. For although, as with covered bridges, every year takes its toll, there is a goodly number still operating on Pennsylvania streams. They may not be as up-to-date nor as glamorous as a nuclear power plant, but they can do a good job grinding meal and generating electric power and even pumping water.

It is in connection with this latter task that I have seen some ingenious installations. They have all been in Lancaster County, most of them in the Amish country east of Lancaster, but I don't doubt that there are similar plants in other places, too. These installations are small and don't require much head; that is, there doesn't have to be much drop as the water passes through the wheel.

The wheels are not large, some no more than two feet in diameter, few of them more than four feet. The wheel is mounted in the stream so that the water passes under it rather than over as is usually the case. A crank on the shaft is so attached to a vertical rod that the rod moves up and down as the wheel turns. This rod is, in turn, attached to an elbow-like piece which, when rocked

back and forth by the rod's movement, pulls a wire which is strung along a pole line to the house, sometimes a thousand feet or more away. Here, a similar contraption changes the pull-pull of the wire to the up-and-down movement of a pump piston, and the farmer has water from his well.

You might ask the Amish farmer, who is inherently opposed to things mechanical, just how this is different, other than in size, from the huge hydroelectric plants on the nearby Susquehanna River, and why doesn't he use electric power from these plants with a whole lot less fuss. He probably won't be able to explain the difference, and he won't much care. He does know, though, that he can go to his mailbox without fear of finding a bill for electricity.

There are, of course, larger water wheels than these, and they are many. Some have been in operation for a long time. John Fitz, who does a thriving business in building water wheels at Hanover, told me about a year ago of a 12-foot diameter wheel that was installed at Briar Creek near Berwick in 1895. It is still running. Fitz water wheels, incidentally, are not only used in Pennsylvania and nearby states. They can be found in Canada, Mexico and Central America, and some have been shipped to Africa and even as far away as New Zealand.

But the water wheel we are apt to find in Pennsylvania will most likely be grinding grain. If the next water-powered mill you see is grinding corn, by all means buy a bag of the meal. It will make delicious corn muffins and griddle cakes. The slowly turning millstones produce a corn meal which for flavor cannot be equalled.—John T. Starr

On the NATURE TRAIL

As I rested by a pool, I noticed a water strider ski across the placid surface. The film bent but didn't break, and as the insect danced about it threw grotesque shadows on the clean bottom.

Suddenly from above, like manna from heaven, a dotted ladybird beetle tumbled into the pool. Now the water strider is a true bug, has a long dagger-like beak for a mouth. The beetle has sidewise-working, chewing mouth parts.

As soon as the beetle hit the surface, the strider was upon him, had rolled him over, and had found a suture in the thorax through which the long beak found its way. The beetle lunged forward, clamping the beak of the strider in the vice-like grip of his jaws. Neither insect could get away from the death-to-the-finish grip of the other.

A rippleless eddy carried them ever so slowly around the pool; then they were swept into the more important currents which carried the grim pair over and down the numerous changing patterns of the creek.—Carsten Ahrens.

Spring is a lovely maiden; Summer a radiant bride; but Autumn is a tomboy whose occasional quietness is more alarming than his noisiest escapades.

Bow Angling

By H. R. WAMBOLD

Picking the teasing roll of the dorsal fin as it cuts the water out about thirty yards from shore, judging the right place to put your arrow, a good shot and you usually have a fighting carp on your line!

Never sell this old mud lover short of being a fighting fish, especially when he has a fishing arrow through him and you are trying to pull him in broadside!

Bow Angling Reels

To get that arrow out there accurately, and make that hit when the carp is rolling, demands a combination of line, reel, and arrow.

Line drag is one of the handicaps which the bow angler faces. This is governed by the type reel and line used by the archer.

The ease with which the line can play out and follow the arrow in flight is mighty important. Back-lashes and bird's nests are one thing that the bow angler cannot tolerate, for this will mean a lost arrow in most cases.

Most bow anglers carry one of two types reels, either the closed face "shoot-off" design, or the open face "shoot-through" type. Line in either type of reel is wrapped around the drum, and is stripped in a free spool manner when the arrow is shot.

Most such commercially marketed reels come equipped with 50 feet of nylon line of around 70-pound test. I personally prefer to have around 75 feet on my reel, for I like to try the long shots rather than the ones right in front of me.

In winding the line on whatever type of reel you use, remember to wind from back to front. A fouled line when shooting can either bring the arrow back your way, or find it zipping away minus the line.

Spinning reels are a perfect setup for the bow angler. The monofilament line offers least line drag, while the reel assures no line fouling. Mounted on the bow with the reel handle away from the arrow rest or shooting side of the bow, fast proper retrieving of the line is foolproof. Thirty-pound test monofilament line should haul in any carp without breaking.

A Few Don't's to Remember

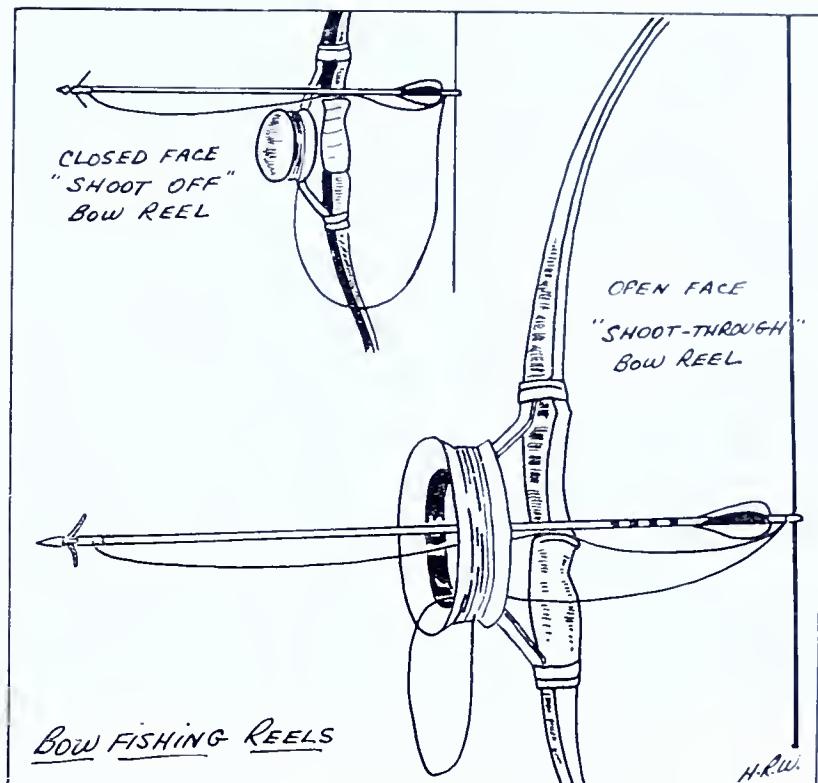
If you are shooting an "off the reel" type and switch to an open or "shoot through" type reel, don't do like I did the first morning. The "shoot through" type requires that you have the line loop come off the spool and *through the reel to the nock of the arrow* (see sketch). I merely had my line loop come off the spool and back to the nock, as on the closed face type. The result was that my shot only took one look off the reel and cut itself on the mounting arm.

If you use a spinning type reel, don't do like my buddy did . . . he forgot to push the button to free cast spool. Man, does that line crack when it tears!

Always have the line loop on the outer side of your bow hand when you are ready to shoot. If you should have it inside the hand holding the bow will not allow it to strip off the spool, and can give you a nasty line cut to boot!

Slide your carp ashore when you bring them in, lifting them clear of the water might just have them come free from the dead weight. At the same time a quick flop might have the line cut your fingers.

"You're on your own hook," . . . is an expression from the early days of fishing on the Grand Banks. A record was kept of each man's catch, and since the fishing was by hook and line it was said that men were "on their own hook."



COOKERY

By J. ALMUS RUSSELL

PICKEREL CROQUETTES

Temperature—390 deg. Fahr. for Time—2 minutes

4 cups cooked flaked fish
2 cups thick white sauce
2 teaspoons parsley
salt, pepper, paprika
1 teaspoon lemon juice
1 cup dried sifted cracker crumbs
1 egg
1 tablespoon water

Mix together the flaked fish, white sauce, parsley, and seasonings to taste. Chill. Shape into conical croquettes. Roll in sifted cracker crumbs. Then roll in egg and water, beaten together. Roll again in cracker crumbs. Chill before frying in deep fat. Drain on absorbent paper.

BAKED PICKEREL IN TOMATO SAUCE

Temperature—325 deg. Fahr. for Time—25 minutes

2 one-pound fish, dressed
4 tablespoons butter
1 minced onion
3 minced tomatoes
salt, pepper, paprika
 $\frac{1}{4}$ teaspoon rosemary
1 teaspoon minced parsley
watercress

Place fish in a baking pan. Pour over them a Tomato Sauce made as follows:

Fry the minced onion in melted butter until brown. Add the minced tomatoes; then seasonings to taste, including the rosemary and parsley. Bake fish as directed, stirring occasionally to prevent fish from sticking to the pan. Serve on a hot platter surrounded by the sauce. Garnish with watercress.



VETERAN FISH WARDEN C. V. Long (left) receives the acclaim of a host of friends, gifts and a certificate of service at recent testimonial dinner held in his honor. Among those honoring the retiring warden are: (left to right) District Warden Richard Owens; W. W. Britton, Chief, Law Enforcement, Pennsylvania Fish Commission; Commission member, John Grenoble; Judge Paul S. Lehman, Mifflin County; and Joseph M. Critchfield, vice president, Pennsylvania Fish Commission.

C. V. Long, Veteran Warden, Retires

One hundred and seventy outdoor people came to honor C. V. "Charley" Long at a testimonial dinner held in his honor recently at Mifflin, Pa.

Warden Long, of East Waterford, served 30 years as a Fish Warden with the Pennsylvania Fish Commission in Perry and Juniata counties. The countless gifts he received from fellow workers, sportsmen and friends represented a badge of honor and respect due this fine gentleman.

Judge Paul S. Lehman, of Mifflin County, was the main speaker, telling representatives of the Pennsylvania State Police, Department of Forests and Waters, the Game and Fish Commissions, and sportsmen's clubs of the excellent, long, faithful services and devotion to duty of Warden Long. Other speakers were Attorney Charles Kugler, New Bloomfield; Fish Commission vice president, Joseph M. Critchfield; Warren W. Singer, Assistant to the Executive Director, representing Albert M. Day, Executive Director, Pennsylvania Fish Commission.

William W. Britton, Chief of Law Enforcement, presented Long with a certificate and fellow enforcement officer, District Warden Richard Owens, presented gifts. Chairman for the dinner arrangements was Regional Fish Warden Supervisor Harold Corbin, Huntingdon. Hon. John W. Grenoble, Fish Commission member, was toastmaster.

Scouts Work to Improve Trout Fishing

102 Boys Move Rock, Construct Devices On Butler Stream

Boy Scouts from 10 Allegheny Council troops recently worked two days in bathing suits and sneakers to construct stream improvement devices on more than two miles of the Little Connoquenessing Creek, Butler County.

Working under the direction of Ralph W. Abele and Scout leaders, the 102 boys moved tons of rock to construct "V" type weirs and other devices to improve trout fishing in the stream.

The deflectors and dams averaged two feet above stream level.

Troops represented in the stream-improvement project were: 230 and 238, Conestoga District; 147 and 87, Chartiers District; 563, Silver Tip District; 154, Guyasuta District; 304 and 83, Admiral Perry District; 64, Montour District; and 266, Fort Negley District.

STREAM NOTES

District Warden Richard Owens (Huntingdon-Mifflin) believes the fingerling trout program this season has every reason to be successful. On July 31, 1962, 15,000 brown trout fingerlings were stocked in approved streams. Bill Lightner and Lane Crubb, of McConnellstown, commented on the size and overall good condition of the fish.

#

Koon and Gordon Lakes are producing some big largemouth bass this season, with 8-8½ and 9-pounders reported. Gordon Lake also produced one 32-inch muskellunge. Shawnee Lake produced quite a number of bass in the 4-5-pound class and pickerel are showing in the 20-24-inch class.—**District Warden William E. McIlroy (Bedford)**.

#

According to old-timers the water in Tioga County streams has been the lowest ever for this time of year. No doubt a lot of trout were lost, the woods are full of raccoons and by the number of tracks along the dwindled streams, they are having a royal feast.—**District Warden Leland E. Cloos (Tioga)**.

#

Plucking a sassy grouse isn't the best way to get a feather in your cap . . . as **District Fish Warden Ray Bednarchik (Chester, Delaware and S. Berks)** and **Game Protector Edward Fasching** learned the hard way. Both officers bought new sports hats on the way to meet truck with shipment of fish for stocking. Stopping at a point to discharge fish Warden Bednarchik spied a grouse walking brazenly around the truck to the amazement of the stockers. Game Protector Fasching who had earlier wished for a feather in his new hat, eyed the grouse with a malicious gleam in his eye. He scooped up the bird and quickly plucked several feathers for his hat. The grouse promptly slashed out in all directions with its beak, broke loose and ambled indignantly down the road with a mighty disgusted gleam in his eyes!

CHANGED ADDRESS? ? ? Promptly notify Pennsylvania Fish Commission both old and new address.

CLUB NOTES



CONNELLSVILLE Worm Fishing Club officers, left to right: W. J. Burnsworth, recording secretary; Arthur Wilkey, president (also known as King of the Yough River); and Ernest Bowers, secretary. George Yothers, vice president, was absent when photo was taken.

More tight lines for more Youghiogheny River anglers were in store as the **Connellsville Worm Fishing Club** again stocked the Connellsville area of the river with walleye, smallmouth bass, panfish and other fish at five different locations. These fish were purchased from club dues plus a donation of fish from Frank P. Kropsic, Jr., at Laurel Hill Hatchery. On May 8 and 11 the club received 4,000 bullheads from the Pennsylvania Fish Commission from the Delaware River with the assistance of Fish Commission member, the Hon. R. Stanley Smith of Waynesburg, Pa.

#

Stanley Youkonis, 15, of Allentown, was selected to represent the **Lehigh County Fish and Game Protective Association** at the Pennsylvania Junior Conservation Camp from August 1 to the 25th. Young Stan has been very active in club work and plans to make game management or forestry his career.

#

The **West Chester Fish and Game Association, Inc.**, recently celebrated its 25th Anniversary. Organized in 1937, the group was called originally the West Chester Anglers' Club but later changed to its current name. The club has grown over the years to a place in state leadership that is envied by many sportsmen's organizations in the commonwealth.

#

Scanning the Allegheny River I noticed a boat that appeared low in the water. Through field glasses, to my surprise, I counted seven people in one small aluminum boat. I called them in, found too few life preservers aboard. Three of the passengers were small boys not over 10 years of age. The operator admitted his foolhardiness and said he never gave it a thought until I waved him in.—**Kenneth G. Corey, District Warden** (Warren).

#

District Warden Raymond Hoover (Crawford) reports two Meadville, Pa., men were fishing from a boat on Lake Erie for smallmouth bass. One man had a hit and was reeling in the hooked fish. His companion started to reel in his line to get it out of the way so his partner could play his fish. On the way in he also got a hit and when both anglers got their lines to the boat, one fish had both lures in its mouth!

The Jump Plugs

Many of our most effective lures are products of evolution. Some keenly observant angler-craftsman altered an existing lure to meet a specific need.

Bait fish habitually bask at the surface. Cripples flurry at the top, interspersed with periods of stillness. Under either condition they are vulnerable from below.

The JUMP PLUG, manufactured by at least a half dozen firms under various trade names, evolved from the old crippled minnow imitation, with spinners fore and aft. The JUMP PLUG is a thin cigar shape with a single propeller at the rear and the hooks placed far back so that the plug sits either vertically or at a forty-five degree angle. The belly contour of the plug varies with the manufacturer. One has a step resembling the hull of a hydroplane. Another has a sweeping up-curve at the head. Still another is equipped with a wobbling scoop that rolls it from side to side. In size they vary from tiny ones, one-sixteenth-ounce midgets to six-inch, two-ounce giants.

The most productive finishes seem to be gold and silver scale, frog and black.

JUMP PLUGS are effective on bass, pike, pan fish and even take an occasional trout. They delight the angler by bringing surface strikes during the day, when other surface plugs are generally not effective.

They produce best in comparatively shallow water. Depths of four feet or less is the rule although they will occasionally bring up fish from greater depths. Cast to a selected spot, allow the plug to remain until all signs of surface disturbance have died away. With a barely perceptible movement of the rod tip rock the plug a time or two causing the propeller to flash. Again allow it to lie still. Repeat the rocking motion at shorter intervals that gradually build up the tempo of motion.

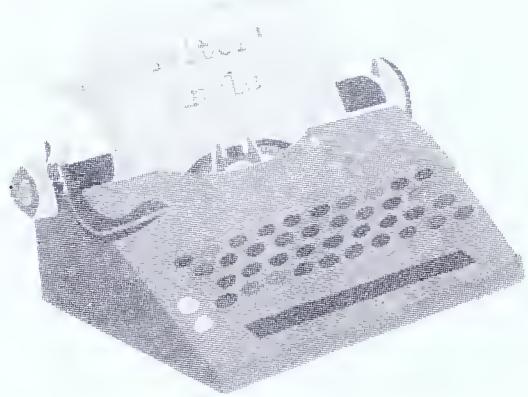
A short jerk will cause the plug to jump clear of the water. Again allow the plug to rest and repeat the performance. Members of the pike family will slash at it furiously. The bass generally swim up and take it with a minimum of surface commotion although an occasional specimen splashes spectacularly. A good JUMP PLUGGER will sometimes take ten minutes to fish out a single cast. His score will be impressive compared to that of the more impatient angler who keeps his plug on the move.

The JUMP PLUG is effective in both lakes and rivers. It takes fish even where currents carry it some distance between manipulations. It raised and hooked the largest smallmouth bass the author ever saw in Pennsylvania waters. Unfortunately the sharp limestone ledges of the pool worked to the advantage of the fish. Incidentally the water was slightly colored at the time.

Recently our morning catch of largemouth bass were all taken after we had attracted their attention with a pork chunk. Fished separately neither lure produced but in combination they were deadly. Used after other lures have aroused the fish is a little technique worth knowing.

After sundown JUMP PLUGS continue to produce although the action is speeded up considerably. This type of plug is excellent when the old reliable lures cease to charm fish and you wish something different.—*Albert G. Shimmel*

Catching owls is getting to be a habit with Herbert Hawley, of Corry, Pa. This season Hawley had another horned owl swoop upon his lure and attempt to carry it off but was unsuccessful. Last year an owl that attacked his lure ended up in Harrisburg and a bounty paid to Hawley. Says Hawley . . . "It's a great battle to land an owl on a fishing rod . . . but I'll be careful . . . that LeBœuf Creeper is a great owl taker on French Creek!"—**District Warden Norman Ely** (Erie).



Dear Sir:

While fishing the Juniata River I caught a 4½-pound gold fish which I am having mounted and I am sending you a photograph of the fish for use in the PENNSYLVANIA ANGLER.

Joseph Longacre,
Bedford, Pa.

Sorry, Mr. Longacre, we have trouble reproducing black and white photos from a color shot. But it's a darn nice fish.

* * *

Dear Sir:

Here's my subscription to the PENNSYLVANIA ANGLER. While I'm about it I would like to commend you fellows for putting out such a top quality publication like the "ANGLER." I look forward anxiously each month for the next issue. I can't think of a better magazine. It is one of the few remaining bargains during these days of higher and higher prices. Keep up the good work.

James E. Becker, Jr.,
Corry, Pa.

Well thank you, Mr. Becker!

* * *

Dear Sir:

The \$2 charge for my new PENNSYLVANIA ANGLER subscription is still the best buy of any fishing magazine. Keep up the fine work.

Carroll John Irvin,
Erie, Pa.



Dear Sir:

Please renew my subscription to the ANGLER. I intend to catch some big walleye and bass from the northern Susquehanna. I've read and re-read "Trolling for Walleye" and float fishing stories on the river many times and made my first sortie last fall as per your instructions. I was greatly impressed with Grace Calvert's friendliness and the scenery along the river. Enclosed is a photo of a 5½-pound smallmouth bass I caught in June, 1961, at Dauberville Dam, Berks County. If any of the members of your staff can add any advice on fishing the Susquehanna or Delaware, I'd be happy to hear from them. Good luck in your efforts to improve fishing.

NEIL VALANTY
Dauberville, Pa.

Old customers always nice to have aboard . . . keep reading the ANGLER, Mr. Valanty, for those Susquehanna and Delaware articles.

* * *

Dear Editor:

Shortly after reading the realistic and interesting article entitled "Wired Stocking Areas" by Joseph Boccardy, Fish Management Biologist, Bureau of Sports Fisheries and Wildlife, which appeared in the May issue of the PENNSYLVANIA ANGLER I was prompted to write to you with a few thoughts of my own summarized as follows:

1. Expand "wired stocking areas" to every stream in Pennsylvania, but carry it further than described by Mr. Boccardy. Stock every fish "under wire" but permit 'fly-fishing for fun only' in these areas."
2. Make use of modern earth-moving equipment in our streams to provide holes and dam-pools in which fish can thrive. It would amaze all of us to learn how cheaply this could be done.
3. Build a pond in every likely spot that can be found. There are thousands of such spots in our state.

I trust you will publish these thoughts in your magazine so more fishermen can think about and comment on them.

Very truly yours,
Matthew J. Hrebar
Beaverdale, Pa.

* * *

The pollution of our environment has many sources—radioactive wastes, fallout from nuclear explosions, domestic wastes from cities and towns, and chemical wastes from factories as well as the new fallout from chemical sprays—and it affects every one of man's natural resources. Of these, water has become the most precious. By far the greater part of the earth's surface is covered by its seas, yet in the midst of this plenty we are in want. Most of the earth's abundant water is not usable for agriculture, industry, or human consumption, because of its heavy load of salts, and so most of the world's population either is experiencing critical shortages of water or is threatened with them. And the water that is usable has become—in an age when man has forgotten his origins and is blind to the very conditions that are most essential to his survival—the victim of man's indifference.—RACHEL CARSON, "Silent Spring."

* * *

Autumn is youthful, mirthful, frolicsome, the child of summer's joy . . . and on every side there are suggestions of juvenility and mischief. While spring is a careful artist who paints each flower with delicate workmanship, autumn flings whole pots of paint about in wildest carelessness. The crimson and scarlet colors reserved for roses and tulips are splashed on the brambles till every bush is aflame, and the old creeper-covered house blushes like a sunset.—Roger Wray.



WHOPPER CATFISH, 34 inches, 23 pounds, landed by Frank Shulenski, of Lyndwood, Pa., at Lake Wallenpaupack recently on live bait. Anglers thereabouts figure it may be a record catfish for the lake.—Ace Hoffman photo, Wilkes-Barre Times-Leader Evening News.



DOUBLE TAKE BIG TROUT for Lee Dean and Hebron White, of Lemont, Pa. While fishing Spring Creek, standing about five feet apart, both felt strong tugs on their lines. When the youths pulled their catch to shore they found a 24½-inch rainbow trout had grabbed both their hooks and spinners.



RICHARD NEARING, Wilcox, Pa., caught this 28-inch, 8-pound walleye, held by his daughter, Rosalie, in Potato Creek near Coryville, McKean County, Pa.



NICE TROUT caught by Walter Pusl, Johnsonburg, Pa., in the West Branch of the Clarion River. The fish was 22½ inches long, weighed 3½ pounds.



LUNKER BROWN TROUT caught by 14-year-old Johnny Skarbek, Elenara, Pa., in Big Run, a small brook trout stream in Jefferson County. The big 25-inch, 5-pound fish was a "sleeper," for the stream is small but Johnny knew this trout was in a deep hole for several years, never was able to hook into him. One day this spring he dunked a salmon egg and the fight was on, lasted 20 minutes, no net!

PICTURES OF THE MONTH



—Photo by Harvey R. Franz, Bethlehem, Pa.



—Photo by Paul May, Allentown Morning Call staff.

OLD LEHIGH CANAL is a real angling and boating (no motors) paradise for anglers of all ages. These fine photographs of the canal were taken from the bank of the canal near Freemansburg, Pa. This is an ideal recreation area that offers good fishing for trout, bass, catfish, suckers, bluegills and pickerel. Looks inviting?



-----CLIP HERE FOR **46-MAP BASS SEASON SPECIAL**-----

Send me immediately postage-paid **THE BASS SEASON MAPS SPECIAL**
Enclosed is \$5.20 (includes Pa. Sales Tax)

To:

Name ..

Address ..

Town ..

Make check or money order payable to the Pennsylvania
Fish Commission

Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. **STAMPS NOT ACCEPTABLE.**



BASS SEASON SPECIAL!

Pennsylvania Waters-Highway Maps

All Counties Except Philadelphia

46 - MAPS - 46

FOR ONLY

FULL SET

\$5.00

FULL SET

Plus 4 per cent Pennsylvania Sales Tax . . . We Pay the Postage

If Purchased Singly the Set Costs You \$18.95

You Save \$13.95 With This Offer

Send Bass Season Map SPECIAL ORDER BLANK on Page 24 Opposite



133 31
1.

Pennsylvania Angler





**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief

Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief

EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief

Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

CARLYLE SHELDON Warden Supervisor
212 E. Main St., Conneautville, Pa.
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

NORTHEAST REGION

CLAIR FLEEGER Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474
ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the

**PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA**

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

MAYNARD BOGART, President Danville

JOSEPH M. CRITCHFIELD, Vice President Confluence

GERARD J. ADAMS Hawley

ALBERT R. HINKLE, JR. Clearfield

WALLACE C. DEAN Meadville

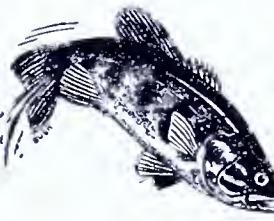
R. STANLEY SMITH Waynesburg

JOHN W. GRENOBLE Carlisle

RAYMOND M. WILLIAMS East Bangor

OCTOBER, 1962

VOL. 31, NO. 10



GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

- 2 PENNSYLVANIA FISH COMMISSION RECEIVES SUSQUEHANNA FISHWAYS REPORT—Russell S. Orr, Chief, Conservation-Education Division, Pennsylvania Fish Commission.
- 4 THE USE OF ELECTRICITY IN FISH MANAGEMENT IN PENNSYLVANIA—Jack G. Miller, Fishery Biologist, Benner Spring Research Station, Pennsylvania Fish Commission
- 9 FROM SPRING TO SEA—Bob Glover
- 10 BOATING
- 12 CONOWINGO DAM RIGHT BANK FISHWAY FROM BELL & HOLMES REPORT
- 14 INDIAN SUMMER WALLEYE—Don Shiner
- 18 CRICKET CRAZY—Ed Koch
- 21 TACKLE TIPS
- 21 YOUTH OUTDOORS—Owen Penfield Fox
- 22 BOW ANGLING—H. R. Wambold

Lake Minisink, Pike County
Cover Photograph by Grant Heilman



The Quiet of an Autumn Evening
Inside Cover Photograph by
Johnny Nicklas—Chief Cameraman
Pennsylvania Fish Commission



Back Cover Art
By Bob Cypher

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years—\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

Pennsylvania Fish Commission Receives Susquehanna Fishways Report

By RUSSELL S. ORR—Chief
Conservation Education-Public Relations Division
Pennsylvania Fish Commission

The Pennsylvania Fish Commission has been advised of the feasibility of fishways around the dams on the Susquehanna River. This information was presented to the Commission Wednesday, August 29, by Milo C. Bell, engineering consultant of Mukilteo, Wash., and Harlan B. Holmes, biological consultant, of Portland, Ore. The report included cost estimates, plans and specifications for alternate means of fish passage and biological factors to be considered.

The contract between the Pennsylvania Fish Commission and the survey team instructed the consultants to survey existing fishways for shad and other migratory fishes, make biological studies required, and submit comprehensive recommendations for the proposed rehabilitation of migratory fish in the Susquehanna River, including functional plans for fish facilities at the dams.

The survey team thoroughly studied plans and specifications for the dams and power facilities as well as other data such as water flow records, all of which were made available at no cost by the power companies.

Original planning called for the construction of certain experimental facilities on the Susquehanna dams. However, investigation by Bell and Holmes revealed that the facilities of the huge Federal experimental laboratory just below the Bonneville Dam on the Columbia River between Oregon and Washington could be used for obtaining data to be applied to the Susquehanna River project. They found that nearly all conditions ever likely to exist on the Susquehanna could be simulated at Bonneville. By utilizing these facilities, many of which could be altered quickly and economically, the survey work has been greatly expedited at a substantial saving to the Commission.

While the bulk of the experimental laboratory work was conducted in the West, numerous coordinated tests have been run on the Susquehanna. An intensive study of the river from Conowingo Dam in Maryland to the New York State line was conducted by Fish Commission personnel, under the direction of Regional Fishery Manager Robert J. Bielo. The research into the water conditions, fish life and other biological factors of the watershed is an integral part of the overall survey.

Biologist Holmes also carefully studied all historical reports concerning the migration of anadromous fish in the Susquehanna River, as well as other waterways. He has stated that these reports furnish ample evidence that the upper reaches of the Susquehanna River originally supported large populations of shad. These fish made long migrations to their spawning grounds. He also reported that such evidence supports hope that provided ecological conditions remain favorable and assistance is provided for passage over the dams, it would be possible to restore these runs of fish.

"It is to be noted that the race, or races, of shad that formerly spawned in the upper reaches of the Susquehanna have long since been exterminated, and the ancestors of the shad that now reach Conowingo Dam for many generations have made a very short migration into fresh water. Therefore, success in re-establishment of shad in the Susquehanna may require transplantation from a race that normally makes a long migration," said Holmes.

A shad egg hatching project, which was requested by Bell and Holmes, is being conducted by Fish Commission personnel under the direction of Mr. Bielo. It is expected to expedite the development of a strain of

Survey Team of Milo C. Bell and Harlan B. Holmes Advises Commission of Cost Estimates, Plans and Specifications, Biological Factors



SUSQUEHANNA RIVER FISHWAYS REPORT is presented to Commission President Maynard Bogart (left) and Executive Director Albert M. Day by engineering consultant Milo C. Bell and biological consultant Harlan B. Holmes.

American shad which will instinctively attempt to return to spawning grounds located in the upper reaches of the Susquehanna.

The report recommends that the work of rehabilitating shad in the Susquehanna River be continued and enlarged. In addition to the hatching of eggs, transplanting adult shad which can be held in schools and artificial propagation of shad until a new "race" has been established, also have been suggested.

The consultants have advised that the key project in the fishways program would be the one located at Conowingo. This dam, although owned by the Philadelphia Electric Company, is located in Maryland. They have suggested that many objections which may be raised could be overcome by actually constructing and operating a fish collection and hauling system at Conowingo, and planting the desired species into the upper river areas. Shad should first be introduced into the upper watershed, thus providing for a return of adults seeking passage above Conowingo Dam. A trapping facility at Conowingo would demonstrate clearly that the species involved are capable of finding and traveling through a fishway. From this facility fish initially could be delivered to suitable spawning and rearing areas above the four dams. During this period it also would be possible to establish a finite survival rate on the success of downstream passage through the turbines and spillways.

Experimental groups of adult fish from the plantings could be introduced into the Conowingo, Holtwood and Safe Harbor pools to demonstrate the ability of these fish to navigate through changed river areas. In the event that there was found to be a differential in passage within the various pools, a decision then could be made as to the need of bypassing the fish around any or all reservoirs. Alternate means are provided in the report to accomplish this. Should passage through the pools prove satisfactory, the actual form of fish passage facility, whether fish ladder, fish lock or barrier dam, could then be determined.

The report states that the initial structure at Conowingo should take substantially the form as recommended since the cost of providing temporary experimental facilities ahead of any permanent structure would be sufficiently great to make such an approach undesirable.

While the consultants do not recommend the full development of fish facilities at all dams at the beginning, they have found nothing which would prevent the construction of these facilities and would expect success of passage of those fish presenting themselves for passage to upriver areas.

The Fish Commission will thoroughly study the report before making any recommendations as to further steps to be taken in the development of the fishways.

The Use of

Electricity

in Fish Management in Pennsylvania

By JACK G. MILLER

Fishery Biologist

Benner Spring Fish Research Station
Pennsylvania Fish Commission

TO MANAGE any fish population, it is necessary to know what kind of fish there are in the particular body of water, the relative numbers of the various species and the rate at which the fish are growing. To get these facts it is necessary to obtain an adequate sample of the total fish population and this is where a problem arises. In the past, nets of various kinds were used with varying degrees of success. In a stream nets are of very little value unless the fish are migrating up or down the stream. Under this condition various types of traps and fyke nets can catch a number of fish. However, these nets are usually selective for the particular species that is moving some distance at this time. Many species of stream fish remain in a relatively small area and are not, therefore, vulnerable to any trap or net which is set and depends on the fish entering due to their movement. Seines are also very ineffective in streams due to the uneven bottom, large stones, logs and other obstacles which prevent proper manipulation of the equipment. The same problem exists in lakes, as some species of fish are much more vulnerable to capture by the various types of nets used. For this reason care must be taken not to over-estimate the number of certain species present or to under-estimate the number of those species which do not net as easily.

For many years biologists searched for an answer to these problems and finally found at least a partial answer in the use of electricity. Both alternating and direct current are used and each has its good and bad points. Let's look at each type and see just how they work.

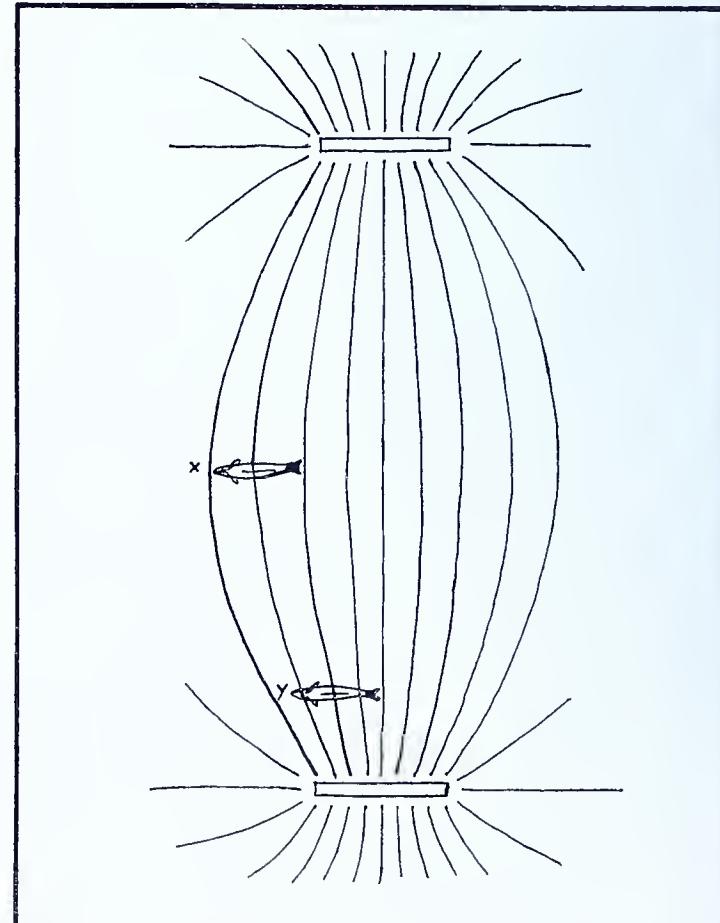


Figure 1. HORIZONTAL ELECTRICAL FIELD in water with alternating current.

Alternating Current

Alternating current is a flow of electricity in which the direction of flow changes a specified number of times per second. For example, 60-cycle AC current changes the direction of flow 120 times per second, or it flows in each direction 60 times a second; 400-cycle AC current would then flow in each direction 400 times per second. The small generators which the fishery managers of Pennsylvania are using at present are 400-cycle generators. These are capable of producing either 115 or 230 volts. The voltage used on a particular stream depends on the size of the stream and the conductivity of that particular water. In use, each half of the circuit is connected to an electrode, and the electrodes are immersed in the water. How far apart they may be and still be effective is determined by the conductivity of the water and the amount of voltage being used. The electrode may simply be a loop of heavy wire or it may be some more complex paddle-shaped device.

It has been calculated that it takes approximately three volts of AC electricity to stun most species of fish. The size of the fish does not affect the amount of electricity needed to stun it but the size does determine how many volts a particular fish receives in water of a certain conductivity. For this reason large fish are more easily shocked than small ones.

It is important to understand the pattern which is formed when electricity is passed through water. Figure 1 is a diagram of an electrical field in water, showing the lines of force thus generated. The more lines of force that the fish interrupts, the higher the voltage which passes through the body of the fish. In Figure 1, it can be seen that fish x, although the same length as fish y, interrupts less lines of force and therefore remains unaffected. The nature of the bottom can also have a great effect on the success of a shocking venture. Figures 2a and 2b illustrate the difference in the vertical field depending on the relative conductivity of the water and the bottom. In Figure 2a, the water is a better conductor than the bottom so therefore the lines of force are crowded into the water area. In Figure 2b, the bottom is a better conductor than the water so most of the lines of force travel through the better conductor and few if any fish could be shocked with this electrode arrangement. If two long, flexible electrodes, one floating on the surface and the other dragging along the bottom, are employed (Figure 3a) a very effective vertical field can be obtained and the effect of the bottom being the better conductor is remedied. Grounded systems (Figure 3b) are also effective under these conditions.

Just what effect does alternating current have on fish? When a fish enters a field of sufficient strength, it is stunned and can be easily picked up with a scap net for examination. There is a very strong contraction of the muscles of the body, which accounts for the rigid condition of the fish when they are picked up. Unless subjected to too high a voltage and/or retained in the field too long, the fish recover within a few

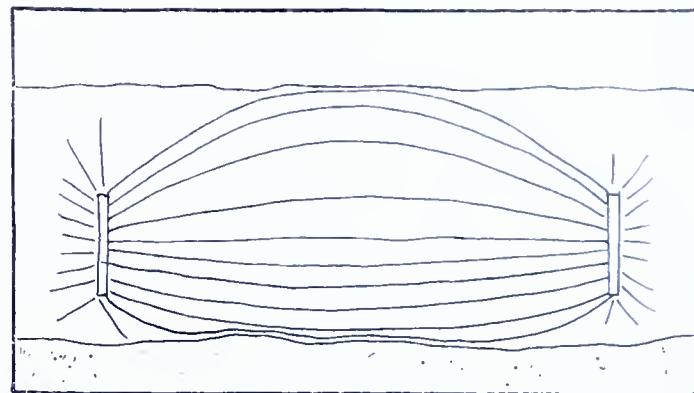


Figure 2a. VERTICAL ELECTRICAL FIELD is a better conductor than the bottom.

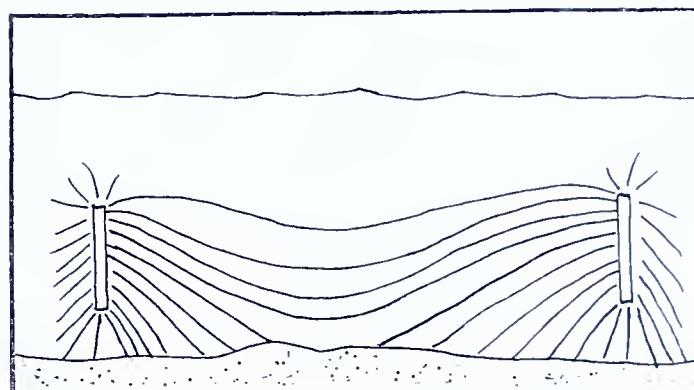


Figure 2b. VERTICAL ELECTRICAL FIELD in water with alternating current when the bottom is a better conductor than the water.

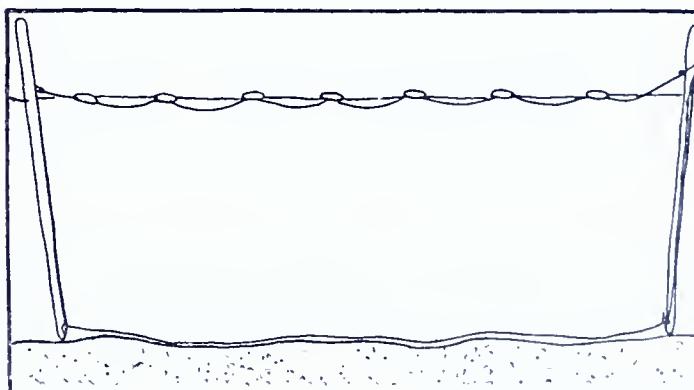


Figure 3a. ELECTRODE SYSTEM when bottom is a poor conductor, electric "seine" produces vertical field.

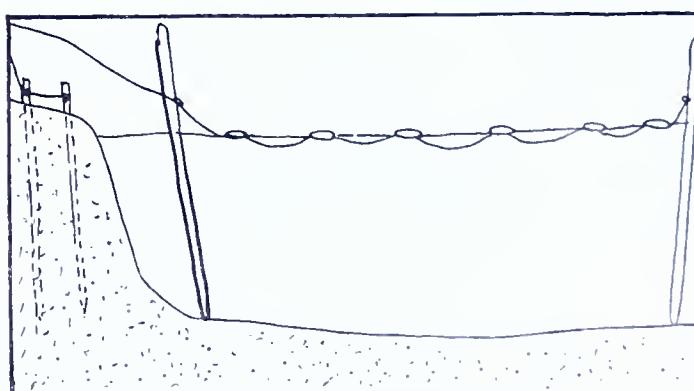


Figure 3b. GROUNDED ELECTRODE SYSTEM, produces vertical field when the bottom is a good conductor.

minutes after being removed from the effective electrical field. Care must be taken not to use too high a voltage or the larger fish may be killed. Hauck (1947) reported the death of 131 out of 503 large rainbow trout, average weight $3\frac{1}{2}$ pounds, while removing them from an irrigation canal in Idaho. The muscular contractions were so severe that vertebrae were fractured and even brain injury occurred. This should not detract in any way from the usefulness of AC electro-fishing gear but should point out that care should be taken to use proper voltages for this work. By using a conductivity meter, it is possible to determine voltage needed in a particular body of water.

This care should be extended to those using the equipment as well as to the fish. It should always be remembered that there is a potential danger to the operators. Non-leaking boots or waders should be worn at all times, and an easy and quick means of stopping the flow of electricity be within easy reach of the operators. Where two paddle electrodes are used the flow can be stopped by either electrode carrier by lifting the electrode from the water.

Fish shocked by an alternating current often appear rather pale when taken from the water. This is due to the contraction of the pigments responsible for the various colors. There also appears to be some sort of "hypnosis" after the current is turned off which prevents the fish from immediately swimming away (Scheminzky, 1941).

In Pennsylvania the two-electrode system is the most commonly used. Each electrode consists of a wooden handle approximately five feet long with a loop of heavy wire about a foot in diameter fastened on the end. One side of the circuit is connected to each electrode. In use the electrodes are moved through the water, usually upstream, and the fish that are stunned around each electrode and between the electrodes are picked up with a small scap net. Figures 4, 5 and 6 show different ways of using this equipment. Which method is used in any particular stream depends on the size of the stream, the length of the area that is to be sampled and the number of men available to do the work.

Direct Current

Direct current is a flow of electricity in one direction only. This flow is from the negative side to the positive side, or to use more technical terms, from the cathode to the anode. The resulting flow of electricity is a rather smooth, continuous flow and its application is different from alternating current. In use the electrodes held by the operators are the anodes or positive electrodes, and the cathode or negative electrode is trailed along behind the operators. When using a small boat on streams the negative electrode or cathode is usually a strip of copper about a foot wide fastened on the bottom of the boat and several electrodes consisting of a loop of wire similar to the AC electrodes are the anodes.

The reaction of fish to direct current is quite different



Figure 4. FOR SMALL SHALLOW STREAMS, the generator may be mounted on a pack board and carried on the back



Figure 5. WITH GENERATOR ON BANK of stream, amount of stream covered is determined by length of electrical cable



Figure 6. WHEN STREAM IS DEEP ENOUGH, use of small boat to carry generator allows continuous shocking over a long stretch.

from their reaction to alternating current. The first reaction of the fish is to turn their heads toward the positive pole anode and start to swim toward it. This reaction, known as *galvanotaxis*, will continue until the fish either reaches the anode or encounters a current of electricity sufficiently strong to cause it to turn on its side and become incapable of any further forward movement. This reaction is known as *galvanonarcosis*. Holzer (1932) calls the voltage between head and tail required to produce these reactions "body-voltage" and for trout 0.4 volt is required to turn the fish toward the anode, 1.2 volts are required to produce galvanotaxis and 2.0 volts are required to produce galvanonarcosis. The amount of voltage needed to produce these reactions varies from species to species. As with alternating current the larger fish receives a greater voltage in the water than the smaller ones and can thus be more quickly and easily affected. Direct current has the advantage of being less harmful to the fish. The severe, and possibly harmful, muscle contractions encountered with alternating current do not occur and the fish recover much more quickly from a direct current shock. When working in a stream where there are undercut banks, brush cover and other good hiding places for fish, the direct current is much superior. Alternating current will stun them wherever they happen to be and you may not be able to see them at all. With direct current the fish swim out of their hiding places and go toward the anode. This makes netting them much simpler.

Even greater anodic attraction (swimming toward the positive electrode) can be achieved by the use of pulsed direct current. Pulsed current is achieved by interrupting a direct current by some type of mechanical or electronic switch which will give a number of periods of flow of electricity alternating with periods of no flow. Best results appear to be achieved with from 50 to 100 pulses per second. Different species of fish differ in the number of pulses per second which will best attract them.

So far we have talked mainly of the use of electricity in streams but it can also be used effectively in lakes. A direct current lake shucker has been developed under the supervision of the author with the help of many different Commission personnel and with the advice from the Electrical Engineering School of the Pennsylvania State University. This unit was designed to enable fish to be sampled or salvaged from lakes where the water is either naturally stained or where there is a continual plankton bloom which prevents seeing the fish unless they are brought to the surface. Figure 7 is a top view diagram of the lake shucker. With this equipment it is possible to cover about a 25-foot strip of water. The main limiting factor for the use of the lake shucker is the conductivity of the water and depth of water. With the present equipment, water over 5 feet deep cannot be effectively sampled. Also if the resistance of the water is greater than about 10,000 ohms per centimeter cube the effectiveness is reduced. The lake shucker operates with a 250-volt, 3,000-watt DC generator and

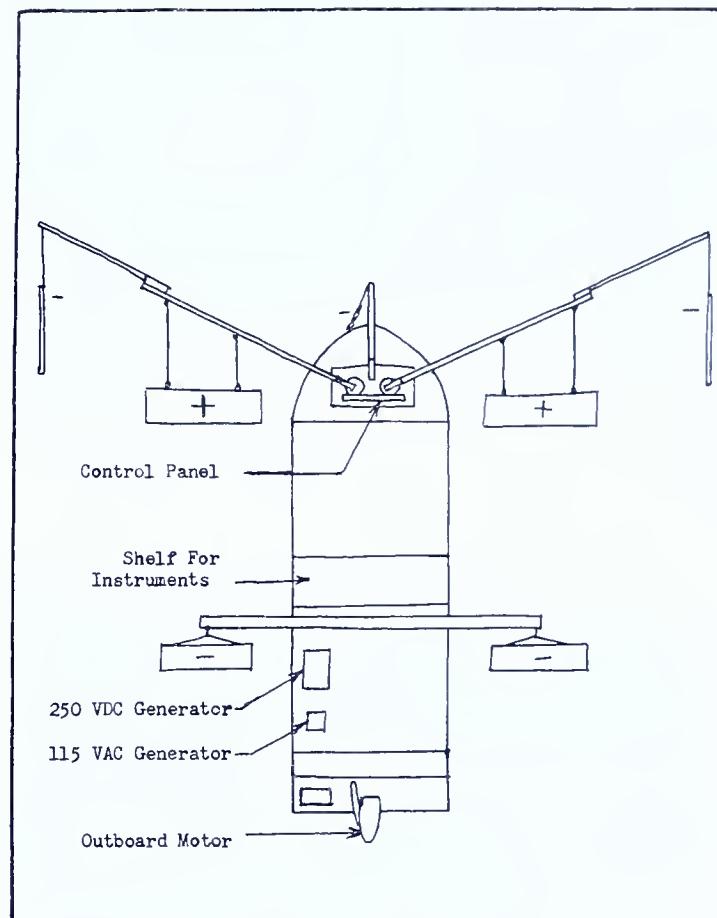


Figure 7. DIRECT CURRENT lake shucker.

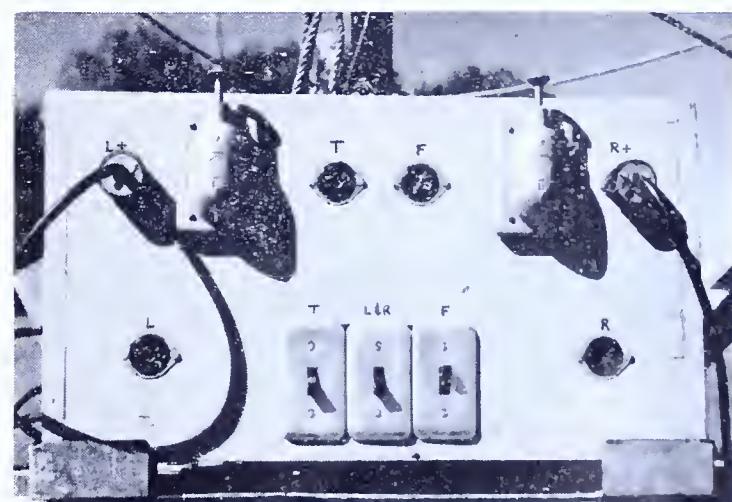


Figure 8. CONTROL PANEL for direct current lake shucker.

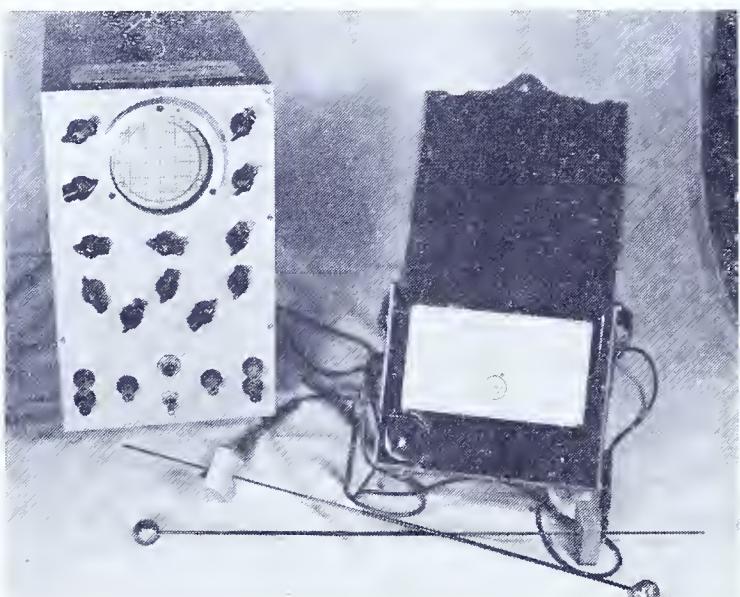


Figure 9. AN OSCILLOSCOPE and voltmeter are necessary to determine the amount and pattern of the electricity.

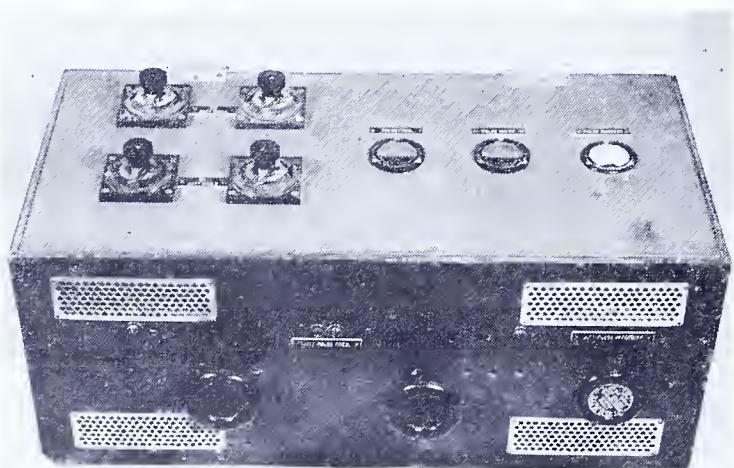


Figure 10. EXTERNAL VIEW of pulse generator which gives a condenser discharge at the rate of 10-120 pulses per second.



Figure 11. DIRECT CURRENT lake shocker ready for action.

when used at night an auxiliary generator supplies 500-watt, 400-cycle AC for the lights. Power from this AC generator will also be used for the oscilloscope (Figure 9) which the Pennsylvania State University designed and built for this work. With the present setup, a straight DC power is available or by using a pulse generator (Figure 10), also designed and built at the Pennsylvania State University, a condenser discharge of from 10 to 120 pulses per second may be obtained. This allows a wide range of variation for experimental work. The main disadvantage of the present setup is the lack of variation in the voltage. To overcome this, it is planned to use an AC generator, 115/230 volts, 2,500 watts, 50-60 cycles, transform this to 750 volts, control this voltage with a Variac over the range of 0-750 volts, and put the required voltage for the particular water through a bank of rectifiers to give direct current at 50-60 pulses per second. This arrangement would also allow the use of alternating current when desired. It should be understood that no more current would be in the water than at present but this would allow fish to be shocked in waters which have too high a resistance to be shocked at present. For example, 250 volts is fairly effective in Pymatuning Lake, Crawford County, which has a resistance of about 8,000 ohms per centimeter cube. To shock equally effectively in Black Moshannon Dam, Centre County, which has a resistance of about 50,000 ohms per centimeter cube, it would be necessary to use 750 volts. In both instances the foot-voltage distance (that distance from the electrodes where two probes one foot apart will cause a deflection of one volt on a voltmeter) will be comparable. The higher voltage is necessary to overcome the increased resistance of some of our waters.

A direct current source for stream work is available from the generators used by our regional managers. A small rectifying unit can be designed to go with this generator. With this small additional unit, it is possible to have 115 or 230 volts AC and also about 110 and 220 volts DC. Thus you can be equipped with a very useful lightweight (total weight about 50 pounds) piece of equipment which will handle most of the streams of the state.

Electricity has become a very important tool of fishery management and there will undoubtedly be improvements in the near future which will make it even more useful and adaptable to the needs of the fishery worker.

Literature Cited

Hauck, Forrest R.
 1949 Some harmful effects of the electric fish shocker on large rainbow trout. *Trans. Am. Fish. Soc.*, Vol. 77 (1947), pp. 61-64.

Holzer, W.
 1932 Über eine absolute Reizspannung bei Fischen (An absolute stimulus tension in fishes), *Pflugers Archiv für die gesamte Physiologie*, Berlin W. No. 229, pp. 153-172.

Schemincky, Fe and Fr. and F. Bukatsch
 1941 *Electrobiologie* (electrobiology). Special reprint from *Tabulae Biologicae*, The Hague, Netherlands, Vol. XIX, 198 pp.

FROM SPRING TO SEA

By BOB GLOVER



ACTUALLY, it is no basis for boasting. But it is a curious fact that waters arising in Pennsylvania become disbursed more widely and variously than those of any other state. Waters of streams, the sources of which lay within her borders, ultimately reach the Atlantic Ocean or one of its appendages at five different points along the eastern and southern coast lines of the North American Continent.

In one instance, headwaters of two streams, the Six Mile Creek and the East Branch of LeBoef Creek in Erie County, that are within a half mile of each other flow into salt water no less than 1,600 miles apart "as the crow flies"; about 3,000 miles if you had to do it by boat.

Six Mile water rises in Green Township, about five miles southeast of the city of Erie, and flows into Lake Erie, thence via the Niagara River, Lake Ontario and the St. Lawrence River to the Atlantic Ocean.

LeBoef Creek, East Branch, originates less than one-half mile farther to the southeast and, by way of French Creek and the Allegheny, Ohio and Mississippi Rivers, flows to the Gulf of Mexico.

Even more worthy of pause is the area in Potter County where, within a radius of about one mile, three major water systems are involved.

From this area, the water of the Genesee River flows north into Lake Ontario, then to the St. Lawrence. Cushing Creek flows south and east to the Susquehanna River via Pine Creek. The Allegheny River, rising near the town of Raymond, wends westward then north into New York, then generally southward to Pittsburgh, where it joins the Monongahela to form the Ohio River.

The water of the Genesee thus winds up in the North Atlantic. The water of the Cushing winds up in the Chesapeake Bay. The waters of the Allegheny wind up in the Gulf of Mexico.

Then there is an area of even smaller diameter in Somerset County where, again, three streams originate and each becomes a part of separate basins. Two of them drain into the Chesapeake Bay but at different points. One is the Raystown Branch of the Juniata and is in the Susquehanna Basin. The other is Bear Creek in the Potomac Basin, and reaches the Potomac River via Brush Creek and Wills Creek into Maryland. The third of the Somerset streams involved is Buffalo Creek which is in the Ohio Basin, and becomes a part of the big water via the Casselman, the Youghiogheny and Monongahela Rivers.

But if one were to study closely geodetic or hydrographic maps of Pennsylvania, there likely would be found other near-like instances at other points along the borders of the six drainage basins within the Commonwealth.

Two of the six basins, the Erie and the Genesee, are part of the whole St. Lawrence River system.

Area wise, the Erie Basin consists of approximately 512 square miles and is entirely within Pennsylvania's "chimney." The Genesee Basin encompasses only 96 square miles of the Commonwealth in north central Potter County.

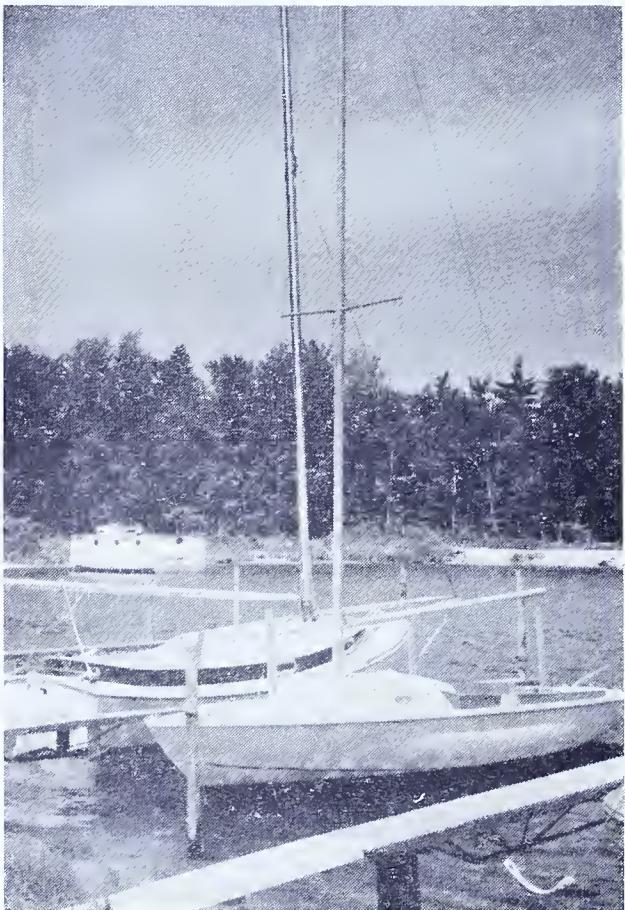
Two other of the state's drainage basins also have a common salt water destination—the Chesapeake Bay. The smaller is the Potomac Basin, 1,571 square miles, spread through parts of Somerset, Bedford, Fulton, Franklin and Adams Counties. The larger, and at the same time the largest of the six in Pennsylvania, is the Susquehanna Basin. Within it are 20,965 square miles extending westward into Indiana County and eastward and northward into Wayne County, actually within about six miles of the Delaware River.

The Ohio Basin, the second largest in the state, fans out over 15,600 square miles. Its easternmost point is in Potter County, by way of the Allegheny River, as mentioned earlier. It takes in all of the western part of the state to the Ohio line, between New York on the north and parts of West Virginia and Maryland on the south, except that area of Erie County which drains into Lake Erie.

The sixth is the Delaware Basin, covering 6,422 square miles of the eastern part of the state between the New York and Delaware state lines. It extends farthest west via a wedge in Lebanon County, wherein rises the Tulpehocken Creek. The Tulpehocken's waters reach the saline waters of the Delaware Bay via the Schuylkill and Delaware Rivers.

To finish the opening statement of this piece, the five different points along the North American Continent at which waters arising in Pennsylvania reach salt water are (1) the Mississippi Delta in the Gulf of Mexico, (2) the head of Chesapeake Bay, (3) half-way down the west shore of Chesapeake Bay, (4) the Delaware Bay and (5) the Gulf of St. Lawrence.

Boating



Johnny Nicklas Photo

Read Owner's Manual After Buying Motor

An outboard motor is a quality piece of equipment, engineered so that, with reasonable care, it will give the owner a maximum of boating pleasure. Purchasers of new outboard motors should take the time to spend a few minutes going over the instructions in the owner's manual which accompanies each new motor.

This manual gives complete specifications on the motor, information on installation and operation of the engine, plus a list of check points in case minor operating difficulties are encountered. There is also information on the "Rules of the Road," buoyage systems and accessory equipment which will add to the owner's boating pleasure.

Check Your Propeller

A bent or nicked propeller will set up vibrations and may in time result in serious damage to the operating parts of your outboard motor. Losses in power and speed are other effects of a damaged propeller. Engineers at Evinrude Motors suggest that you have your propeller checked periodically to be sure all blades are properly pitched.

Courtesy Is Key to Waterway Fun for All

Courtesy afloat, observance of the rules of the road or common sense boating—call it what you like—all add up to just one thing—better boating for everyone. Whether you're a fisherman, water skier, cruising fan or outboard racer, you'll find your boating will be more fun when you know and practice the boating rules of the road.

Your first consideration should be for the safety of yourself and others. This means having proper equipment in good condition and ready to use. It means respecting the rights of other boatmen. It means having a thorough knowledge of sound boating practices.

Fortunately, most boating rules and regulations are based on common sense and are quickly learned. For example, when meeting another boat head on, steer to the right, the same as you would if driving a car. If a boat approaches you from the right, it has the right of way; if from the left, you have the right of way.

A boat being passed has the right of way over the one doing the passing. When overtaking another boat do so from either side but allow enough room so the boat being passed will not be disturbed by your wake. Powerboats must always give way to sailboats and row-boats except in a rare situation where a sailboat is overtaking a boat that is under power. Even in this case, it's best to give the sailboat the right of way since it is not maneuvered as easily as a powerboat.

A boat leaving a slip, wharf or pier has no rights until it is in open water. Here the situation is comparable to an automobile entering a main artery of traffic from a side street.

Boatmen are always expected to give aid to others in need. Whenever you see a disabled boat, whether it be out of fuel or experiencing engine trouble, pull alongside and offer your assistance. No doubt you would be happy to have others do the same for you.

Avoid being a boating showoff. This type of boatman impresses no one but himself and possibly a law enforcement officer. Hot rodding is always in bad taste and in most cases, the mark of an inexperienced boat operator.

Show consideration for others when at a launching ramp by having your boat ready to slip off the trailer before you get on the ramp. When pulling a boat out of the water, get it on the trailer quickly and get off the ramp as fast as possible when others are waiting. Pull the trailer to an out-of-the-way spot to do your final tying down and tidying up.

Fishermen should be given plenty of room, for they may have trolling lines out behind the boat or bobbers



FISHERMEN do not appreciate being buzzed by other boats. It's only common courtesy to give fishermen and all other users of the water plenty of room to enjoy their favorite activities. Cooperation works better than legislation in controlling the use of the nation's waterways.

in the water anywhere near the boat. And remember, fishermen do not care to be buzzed by a large boat and rocked by its wake. In turn, fishermen should avoid anchoring in narrow channels and other passageways where they can block the flow of traffic.

Keep the waterways and beaches clean by having a litter bag aboard your boat. Throw all refuse into the bag and empty it into a receptacle on shore when you have finished boating.

These are just a few of the things that can make boating better for everyone. For the serious skipper who wants to learn more about all aspects of boating, the U. S. Coast Guard Auxiliary and U. S. Power Squadrons have set up excellent instruction courses which are held in many cities at various times of the year. Interested boatmen may obtain more information by contacting local or nearby offices of the Auxiliary or Power Squadrons.

Starboard and port refer to the right and left sides of a boat when looking toward the bow. It may be less confusing if you remember that both four-letter words, port and left, go together.

Outboard Spray Paint

Outboard owners can keep their motors looking new by touching up scratches with easy-to-use spray cans of paint. Factory colors, available in pressurized cans, can be purchased from most marine dealers.

Length of water skis is determined by the weight of the skier, but the average is 5 feet 9 inches for women and 6 feet 3 inches for men on standard type skis.

Moor the Small Boat

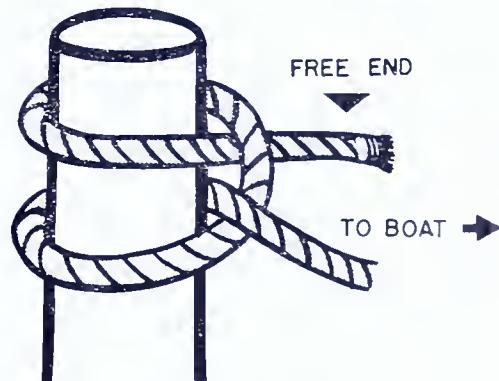
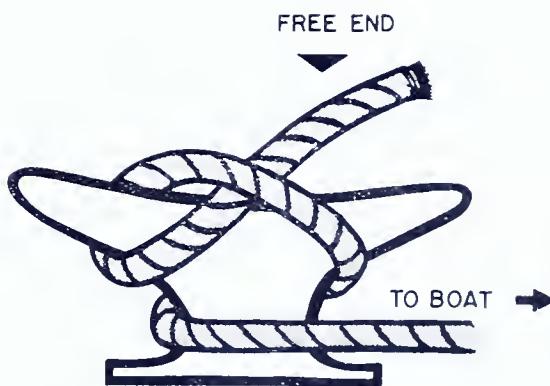
Outboard owners soon discover that the everyday, around-the-home knot is not the answer when it comes to mooring a boat at the pier. On the other hand, they also find that only a professional sailor is able to master the dozen or so knots recommended by experts.

Outboard authorities point out that tying up to a dock is the boat owner's most common use for line and suggest learning two simple hitches.

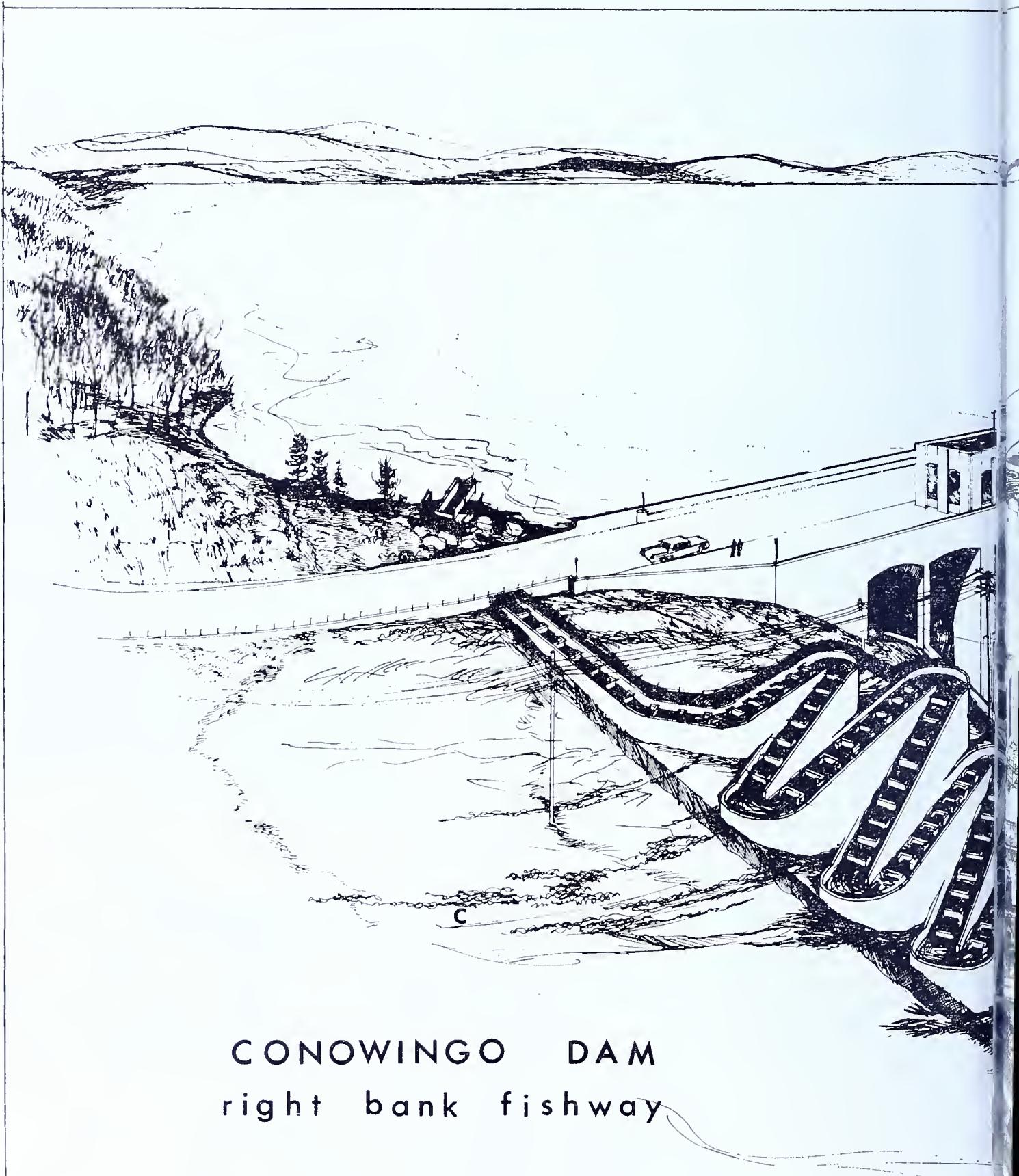
The first knot in the illustration is used to tie up to a cleat. Start by first passing the line around the cleat under both horns, then diagonally across the top of the cleat and then under the first horn. Finish up by tucking the end under the line where it passes across the top.

Constant pressure, from the pulling away action of the boat, insures the simple cleat knot from freeing itself. When ready to shove off, merely slacken the pull of the boat and the hitch loosens up and slides free. This eliminates fuss to undo jammed knots.

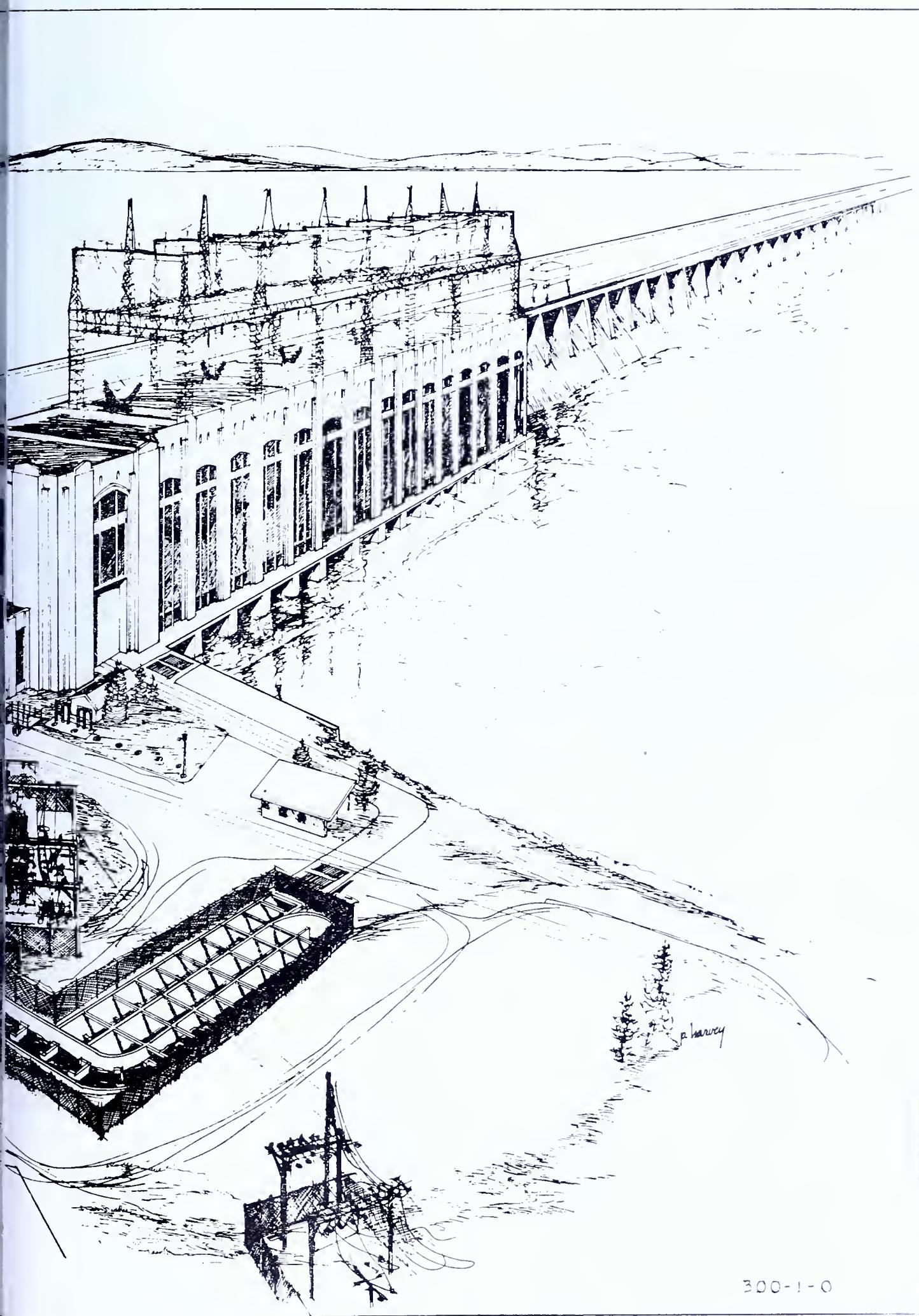
The second knot, the clove hitch, is used to make rapid attachment to posts or piles. This, too, is simply two loops with the free end tucked under. A little practice is all that is needed to "prepare" the clove hitch so that when the dock is approached the loops can be dropped over the top of the post. A quick jerk of both ends of the line makes it snug. To make a permanent fastening of the clove hitch, take two half hitches around the standing end. This insures against slipping. —Wayne Heyman



COURTESY OF MERCURY OUTBOARDS

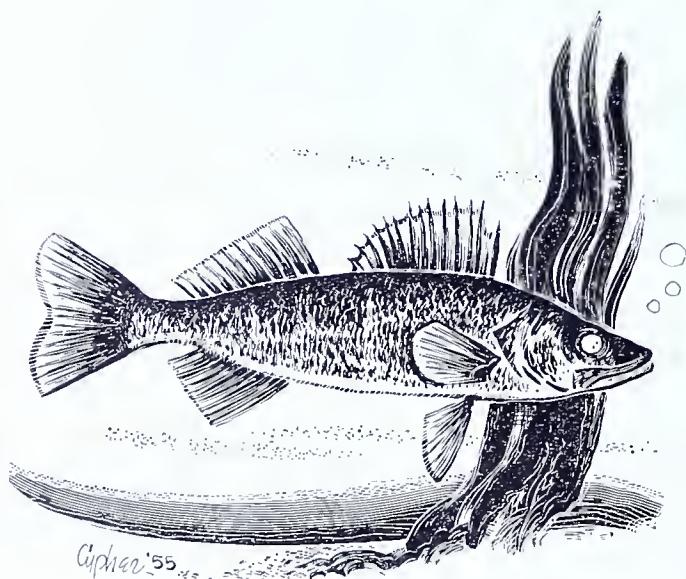


CONOWINGO DAM
right bank fishway



Indian Summer Walleye

By DON SHINER



WHEN the first flaming leaf falls from the sugar maple, it is the signal to old-timers to grab the gear and resume drifting lazily across the wind-rippled rivers for walleyes. Not only has this moon-eyed perch resumed feeding now that the summer doldrums are past, but the colorful foliage splashed along the shore lines gives the impression of drift-fishing right through a Kodachrome slide! In fact, were it not for the regular episode of walleyes sledge-hammering the lure, one needs to prick his arm occasionally with a sharp hook to learn whether the colorful outing is fantasy or real.

To veteran fishermen of Pennsylvania good walleye fishing is synonymous with balmy Indian summer weather, the odor of burning leaves and walnut-stained fingers!

One sure-fire method for enjoying walleye capers now is to troll or drift a spinner and bucktail, or a spinner and worm or minnow combination along the bottom of a deep river channel or across a rocky floor of a deep lake.

Today an outboard, idled down to the slowest speed, propels the fisherman across walleye water, yet it was only yesteryear that anglers powered their boats man-

ually, using heavy oars to row the craft at a snail's pace. Or if the wind riffled the water with sufficient force to propel the boat, the oars were quieted and the forces of nature employed to advantage in trolling the lure. In fact, of all methods of trolling, this quiet drifting technique still remains the capstone of walleye fishing for many serious anglers.

The quietness of the drifting boat with only the sounds of occasional waves splashing the boat, of far distant shrieking of passing flocks of crows or a train whistle, coupled to the colorful panorama of shore line beauty endears this type of fishing as the most restful, relaxing and stimulating of all outdoor adventures. Yet there is exciting action, too. During the early summer, before the water temperature climbs to its sizzling summer height, and now again during the autumn, when the water slowly descends the red ladder in the thermometer, walleyes feed ravenously.

Old *Stizostedion Vitreum* prefers a floor of rocks and sand in deep water. Depths may range from ten to thirty-five feet. Only trolling or jig-fishing are suitable methods for this deep-water angling. The lure must be kept moving slowly on or near the bottom. The walleye will rarely move any appreciable amount to intercept a passing bait unless severely plagued by hunger. Then, when a walleye socks the bait, quickly note the nearby landmarks, so repeated floats can be made over the area. Old moon-eyes is a "school fish," and where one is encountered, there are others generally of uniform size. Picture for a moment the excitement that ensues when a school of husky five-pounders is encountered!

Though walleyes grow to a world's record of 22 pounds 4 ounces (36 $\frac{1}{4}$ inches long) this is an exceptional fish. The average tips the scales at five pounds, and measures upward to 30 inches. This game fish is widely distributed in North America and is quite plentiful in the rivers and lakes of Pennsylvania.

Why not spend a few evenings or weekends this autumn getting acquainted with this remarkable freshwater gamester? Try the pleasant method of drift-trolling during the balmy Indian summer days. You'll get plenty of action and have a chance to view the breath-taking autumn foliage as a bonus.



NOT THE MOST spectacular fighter, the walleye can bore down with authority, especially as he nears the boat or shore. He is an Indian summer fish that has no equal on the table.



HEFTY SPECIMEN, this walleye could find a good home in a frying pan or in the oven, baked, with the trimmin's. Veteran walleye anglers avoid those sharp teeth and gill covers which can cut you like a razor blade.

TOP LURES are spinners and bucktails, spinner and worm, night crawler, minnow combinations or these live baits used separately drifting or from the shore. Trolling gets the big ones!

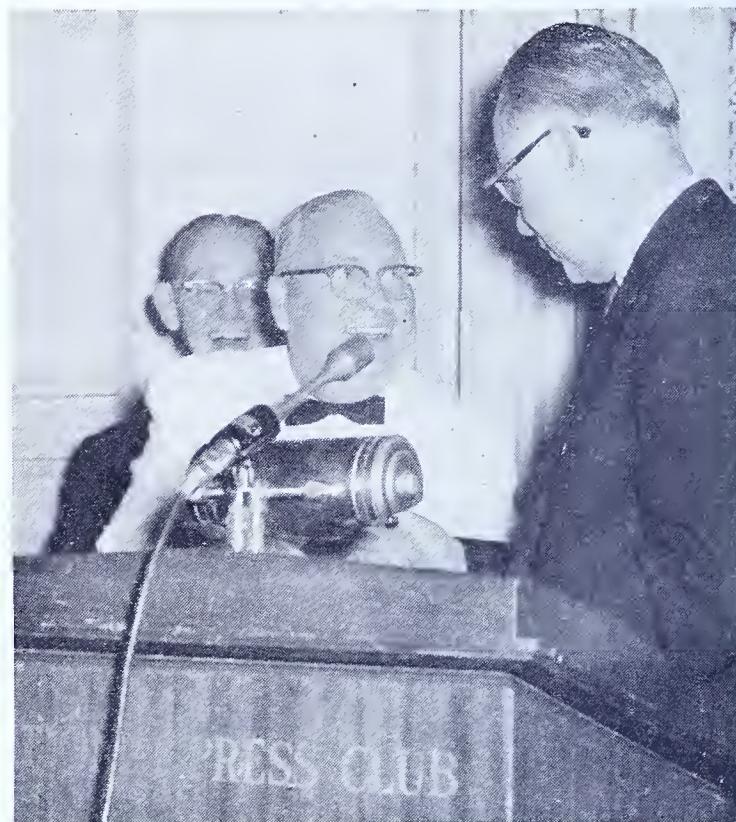


Wildlife Conservationists Honor Anniversary of Federal Act

Several of the nation's leading wildlife conservationists received special commemorative scrolls in Washington, D. C., at a dinner marking the 25th anniversary of the signing of the Pittman-Roberston Act providing Federal Aid in Wildlife Restoration.

Those receiving the scrolls in recognition and appreciation for outstanding efforts and contributions to 25 years of wildlife restoration in the United States were: United States Senator A. Willis Roberston of Virginia, who introduced the Pittman-Robertson Act in the House of Representatives of which he was then a member; Carl D. Shoemaker of Winter Park, Fla., who was Secretary of the Senate Special Committee on Wildlife, 1930-1948, and who prepared the draft of the original Pittman-Robertson Bill; Dr. Ira N. Gabrielson of Vienna, Va., president of the Wildlife Management Institute, who was Chief of the Bureau of Biological Survey, 1935-1940, and first Director of the Fish and Wildlife Service, 1940-1946; Albert M. Day of Harrisburg, Pa., Executive Director of the Pennsylvania Fish Commission, who was first Chief of the Branch of Federal Aid, 1938-1942; Robert M. Rutherford of Washington, D. C., who was Chief of the Branch of Federal Aid, 1941-1957; and Egbert C. Hadley of Middlebury, Vt., Chairman of the Board of the Sporting Arms and Ammunition Manufacturers Institute, representing the industry.

Under Secretary of the Interior James K. Carr was principal speaker at the dinner honoring all those associated with the passage and implementation of the Federal Aid in Wildlife Restoration Act which has been largely responsible for the restoration of many species of wildlife in the United States and for placing wildlife management on a scientific basis. These were accomplished by providing funds, made available from an excise tax on the manufacturer's price on sporting arms and ammunition, to the states for effective wildlife research and management programs and for the purchase



SILVER ANNIVERSARY of the signing of the Pittman-Robertson Act was commemorated by a dinner in Washington, D. C., recently, Albert M. Day (center), Executive Director, Pennsylvania Fish Commission, is given a scroll in recognition and appreciation of his efforts in wildlife restoration in America, by Frank P. Briggs, Assistant Secretary for Fish and Wildlife, U. S. Department of the Interior. At left is C. R. Gutermuth, vice president, Wildlife Management Institute.

and development of land and water areas for wildlife. A total of \$220,000,000 has been apportioned to states and territories since the program began, and the states have contributed 25 per cent or more of the costs of their wildlife restoration projects from their regular funds.

Legislation providing for Federal aid for the restoration of fish was passed in 1950.

There Is No Substitute for Conservation

THE job of selling Conservation is a paradox—everyone is for it but in kind of a negative way. Everybody believes in conservation; nobody is against it; but everybody expects somebody else to practice it.

Conservation cannot be accomplished as an annual Day or Week; it is rather a day by day and a generation to generation task for all. The processes of growing, harvesting, and using are constantly changing. Pioneer conditions and concepts are not sufficient for modern living. The by-products of modern living have or soon will, force some extreme changes of managing major resources.

Water lodged in a lowland pothole may be a nuisance to a farmer, but it has potential value to nourish his

crops, a reserve for drought, to supply the air with humidity and replenish the deep reservoirs. The concern, interests and rights, therefore, of both the individual landowner and the whole public must be the basis for land management and usage.

These are not abstract propositions, to be accepted or ignored by people—they are fundamental and pressing daily events which must be solved by responsible citizens. It's not a job for somebody else—because somebody else is—YOU and ME.

The management of the natural resources is conservation and there is NO SUBSTITUTE FOR CONSERVATION.—Excerpts, Alfred L. Nelson, Editor, Minnesota Conservation Volunteer.

Something New in Outdoor Magazines

"Should We Feed the Birds?" "A Blizzard Can Panic Anyone." "The Ice Fishing Is Fine." "Can We Grow Enough Timber?" "There's a World of Beauty in Your Back Yard."

These are titles of just a few of the exciting articles that will appear in the charter issue of NATIONAL WILDLIFE, a new, high quality, color magazine for outdoor enthusiasts to be introduced this December by its publisher, the National Wildlife Federation.

Growing for over a quarter of a century and the largest private conservation organization in the world, with some two million supporters, the National Wildlife Federation has long been known as a leader in the field of conservation education. Its scholarship and fellowship program for deserving college students, its publication of the respected CONSERVATION NEWS and CONSERVATION REPORT newsletters, its sponsorship of National Wildlife Week, and its distribution of conservation literature to thousands of teachers, school children and other interested citizens have won it broad support from the American public.

Now the Federation is taking what it feels to be the next logical step toward getting the natural resource conservation message across to more people and, at the same time, broadening its base of support. Currently its operations are financed almost entirely by contributions made in return for the colorful Wildlife Conservation Stamps and through the sale of nature-related merchandise items.

The National Wildlife Federation's new magazine—a bimonthly with a minimum of 48 pages—will be sent only to Federation associate members. This is a new arrangement whereby, for the first time, individuals can join the Federation simply by submitting an application together with the \$5-per-year fee. In addition to six issues of NATIONAL WILDLIFE, associate members will be given the opportunity to purchase outstanding new nature books at reduced prices—the National Wildlife Book Service—and will receive a numbered membership card, an art print, an auto decal, and other services.

NATIONAL WILDLIFE will be a 48-page, top-quality magazine on an 8½ by 11¼-inch format, with at least two colors used throughout. Sixteen pages of every issue will feature full four-color reproductions of the best wildlife color photography and art work available. Printing will be done by the W. A. Krueger Company of Milwaukee, printers of such well-known scenic publications as Arizona Highways, New Mexico magazine, and Ideals.

Aimed at every American interested in the outdoors, NATIONAL WILDLIFE will be the first national quality magazine to approach the subjects of recreation and conservation from the point of view of every citizen—men, women, youth; individuals and groups; interested spectators as well as active participants; the back-yard naturalist of the city and suburb as much as the far-ranging traveler of the wildest back country.

Federal-State Fishing Personnel Meets at Bellefonte

Public fishing waters in Pennsylvania were stocked with 2,835,400 legal size trout during 1962. The information was released following a joint meeting of Federal and State fishery personnel. The trout stocked in Commonwealth waters included 2,166,900 from the state fish hatcheries, and 459,728 from Federal hatcheries located at Lamar, Pa., and Bowden and Leetown in West Virginia. In addition, the Federal government also stocked 208,772 trout in Allegheny National Forest and several other Federal areas which are not included in the cooperative program.

The Bellefonte meeting, according to Albert M. Day, executive director of the Pennsylvania Fish Commission, was held to provide Federal and State fish agency personnel the opportunity to compare the results of the first year of the Federal-State cooperative trout stocking program in Pennsylvania.

George Balzer of the U. S. Fish and Wildlife Service, Boston, served as moderator of the meeting. Representatives of both agencies expressed satisfaction with the fine spirit of cooperation that prevailed during the first year of the program.

In addition to the stocking of trout, the cooperative agreement includes biological surveys of publicly-owned or controlled trout waters. A report of this work showed that thirty-eight trout streams were sampled to determine the carrying capacity of the streams. This capacity is expressed in pounds of fish per acre. The sampling included the gathering of chemical and other data. These surveys are being continued jointly by Federal and State biologists.

The most significant finding has been that a majority of streams studied carried good populations of native trout which are capable of providing recreation for many anglers, even late in the fishing season. It was found that returns to the angler of hatchery trout planted in accessible, large streams located near urban centers were very high, thus suggesting that plantings of this type are better utilized by the anglers than trout plantings in the smaller, headwater streams.

A few familiar contributors to the first issue will be outdoor writers Mel Ellis, Ken Warner and Dick Kirkpatrick, and photographers Winston Pope, Ozzie Sweet, George Laycock, Leonard Lee Rue, III, Karl Malsowski, and Mrs. Myrtle Walgreen, FPSA. Each issue will feature a Washington, D. C., column edited by the Federation's conservation education chief, Louis S. Clapper. Spaced among the major articles in each issue will be pages of color art, photographs, short items and fun pages for the youngsters.

Details on associate membership in the National Wildlife Federation may be obtained by writing to: Magazine, 1412 Sixteenth Street, N.W., Washington 6, D. C.



"Cricket Crazy"

By ED KOCH

WE BOTH grew up in the same town of Carlisle although I had a head start on the second party of this story. My interest, of course, has always been in the artificial fly, whereas the other individual was concerned with the real thing. The individual in question lived in the LeTort, a 20-foot wide limestone stream, and until this day neither of us was aware of the other.

I operate a fishing tackle and fly tying shop in Carlisle. Every weekend of the Pennsylvania trout season we cater to fly-fishermen from Michigan, Virginia, Maryland, West Virginia, Washington, D. C., Ohio, Delaware, New Jersey, New York and other parts of Pennsylvania. They come to enjoy the challenge of the elusive brown and brook trout of the now famous LeTort. The weekend of August 11 had started as usual for us; we had fishermen in from Virginia, Washington, Ohio, Pittsburgh and Philadelphia. My partner, Ed Shenk, spent the morning on the stream and released eleven trout up to 16 inches long and came back to the shop stammering and stuttering about the monster he hooked and lost in the wooded section of the LeTort above Charlie Fox's meadow.

It was my turn on Saturday evening and I hooked and released several trout that were gorging themselves on a hatch of flying ants that appeared on the stream about two hours before dusk. The hatch lasted until dark. All of the visiting anglers had chance after chance at rising trout that were feeding on the tasty morsels. Several respectable trout were taken on minute dubbed fur ants, size 22 and 24, no larger than a tick.

Plans were made to fish with the Ohio and Philadelphia boys the following morning and I drove to Charlie Fox's meadow about five minutes of seven. The sun was shining brilliantly and the sky above was a cloudless, robin's egg blue. They were just rolling out of their sleeping bags, stretching, yawning and shaking the heavy morning dew from their ponchos. We traded trout talk for a few minutes while I put my rod together, slipped into my waders and moved upstream in hopes of finding Ed's big trout or one like it.

I began casting at the bath tub and worked my way up through the "barnyard meadow" that looked the picture of an English Chalk stream. Successful fishing here requires casting a long line with a fourteen-foot leader, and you must search each bank

in order to locate early morning feeders that might still be working there. Using one of Ed Shenk's LeTort crickets, a black deer imitation of the jumper, I had several fish come up, inspect my fly and drop down as though it were sprayed with "fish repellent."

Working around the bend of the "barnyard meadow" and starting up the straight stretch along the railroad tracks I made a dozen or more casts with no results. I had the feeling at this moment that the stream was as empty as a hatchery truck in December. Reeling in line I started upstream checking the water. Suddenly I stopped! Lying out in the open on top of a depression in the cress was the biggest trout I ever laid eyes on. Its back was almost out of the water. A shiver ran up my spine and the hair on the back of my neck stood out like the hackles of a fighting cock.

Dropping to my knees I cut my leader in half and fumbled with my fly, trying to keep one eye on the clinch knot I was tying and the other on my trout. After what seemed to me like an eternity, the fly was on and the trout was still feeding. Crouched on my knees I began working out line to gauge the exact distance between that log-like lunker and myself. I thought to myself, "brother, you're feeling like a condemned man eating his last meal." My first cast fell lightly on the water, in front of and slightly to the left of the trout. The float was perfect, but I might as well have been fishing with an invisible fly—the monster never moved. Casts number two and three were identical, and I began to worry. I thought every minute this dream fish was going to drop down beneath the cress and disappear.

Certain that every cast was going to be my last I decided to place the fourth one on the far side of the trout, shooting enough line to drop the fly in front of the brownie and keeping the leader on the far side so that it would not float over its back at any time. After three or four false casts I shot the line forward, releasing it high in the air at about ten o'clock. The loop turned over neatly, the cricket hit the water barely making a ripple and the leader fell six or eight inches on the far side of the brown.

The current moved the fly slowly and deliberately toward the feeding brute. I mended line, preparing for the strike that I had pictured over and over again in my mind the past seventeen years I would someday make on a trophy trout. The cricket drifted directly over its nose and I saw the head turn slightly to the right, the mammoth jaws open and produce a quiet "slurp" that inhaled the fly ever so gently. I tried to pause for a few seconds while the trout submerged with the fly, then slowly but forcefully raised the tip of the light rod and drove the hook home.

For a few moments nothing happened.

Then slowly and surely it turned and headed down stream plowing through the cress, tail thrashing the water. The big brownie bore for the bottom with a weight that seemed unbelievable for a trout in a stream this size. I pumped it up and it would dive down, time after time, until some twenty-five minutes later I turned it up stream toward a break in the grass. I found myself waist deep in water. The net was placed and slowly the trout drifted back, tail first into the net. With one-third of the trophy in the net I heaved trout, net and all about fifteen feet back in the meadow.

The fish was mine!

The rest was ritual, ordeal or whatever you want to call it. We measured her, a beautiful female at 27 1/4", weighed her on the De-Liar at 9 1/2 pounds and shot four rolls of film along the banks of the LeTort and in Charlie Fox's meadow. There was excitement, back slapping, handshaking and story telling, the like of which I had never seen. As Charlie Fox and Ed Shenk said as they shook my hand and congratulated me, "Ed, boy, this is it, that's a Once-in-a-Lifetime-Trout."

I believed them!

Scoutmaster—Special Fish Warden Receives Coveted Hornaday Award

At a campfire ceremony deep in the Allegheny National Forest, a Pittsburgh Boy Scout troop and its Scoutmaster received Scouting's highest award for service to conservation. Roger Latham, Outdoor Editor of the Pittsburgh Press, presented The William F. Hornaday Award for distinguished service to conservation by a Scout unit to Troop 230, Mt. Lebanon, Pa.

In a special announcement, John M. Phillips, Jr., son of one of Pennsylvania's greatest conservationists, presented to Scoutmaster Ralph W. Abele of Troop 230, the Hornaday Medal for Distinguished Service to Conservation by an individual associated with Boy Scouts of America. It marked the first time in the 50-year history of Allegheny Council, BSA, that the famous medal had been presented.

During the past three years, Scoutmaster Abele has led his troop of boys, sponsored by the Mt. Lebanon Presbyterian Church, on an impressive series of conservation exercises. Numerous trips were made to northern tier counties during the winter months to feed starving wildlife. Other excursions involved the construction of devices in stream beds to speed the flow of water and improve habitat for game fish. Still other trips taught the boys how to live off the land with no other provision than a small amount of salt.

The Unit Award cited the large number of scouts in the troop who had won the Pennsylvania Game Commission's Conservation Award by successfully completing requirements for merit badges in wildlife and soil and water conservation.

Abele was singled out for his outstanding performance as a Scout Leader in the field of Conservation and for his work as Project Chief on Allegheny Council's Conservation Committee. Under his direction, the committee is developing a comprehensive conservation program for the 10,000 acres of Council-owned lands in western Pennsylvania and northern West Virginia. Abele is a Special Warden for the Pennsylvania Fish Commission and has acted as liaison between sportsmen's clubs and Game and Fish Commission officials in winter feeding and stream improvement projects.

The Hornaday Award was established by the New York Zoological Society in honor of its first Director, Dr. William T. Hornaday. Hornaday was one of America's staunchest pioneers for conservation of natural resources, and early in this century, with the help of John M. Phillips of Pittsburgh and President Theodore Roosevelt, launched much of the legislation that saved the bison, migratory birds and much of our forest land from destruction and extinction.

District Warden Clifton Iman (Butler and Beaver) got a note from Doug Leith, Butler, Pa., . . . "to say thanks to the Fish Commission for the wonderful fishing I have enjoyed since the streams were stocked the second time. I had some fine dry fly and nymph fishing for about a month following the latter stockings and would like to commend you and the Commission for a job well done. The trout placed in Little Creek were especially nice and I had a ball down there on several occasions. Bear Creek also furnished some really good dry fly evenings."



SCOUTING'S HIGHEST HONOR, the William T. Hornaday Award, is being presented to (right) Scoutmaster Ralph W. Abele of Troop 230, Mt. Lebanon, Pa., by John M. Phillips, Jr., son of one of Pennsylvania's finest conservationists. The award this year went to Abele, another great conservationist who also serves as a special fish warden for the Pennsylvania Fish Commission.—Newman Schmidt Photo.

STREAM NOTES

I checked C. H. Hanneman, Callery, Pa., fishing at Glade Run Lake during July and he had one northern pike 28 inches long and a catfish 20 inches. He had lost two other northerns. —**District Warden Clifton Iman** (Butler and Beaver).

Myron Bortz, of Stoneboro, Pa., has a small half-acre farm pond with some largemouth bass in it. This past spring he got two dozen ducklings and put them on the pond. Half of them disappeared. He later found the bass had eaten the ducks. Now, the survivors are nearly full grown and they refuse to swim on the pond. They puddle in the shallow water but if startled, will immediately beat it back to shore. If chased, they will go around the pond but will not cross it in the deep water. Those big, bad bass aren't going to get them like they got their relatives . . . not if they can help it!—**District Warden Richard Abplanalp** (Mercer-Lawrence).

On July 28, while on motorboat patrol with District Warden Tony Discavage (Armstrong) on the Allegheny River, the lock master at Lock No. 7, Kittanning, told the following story. . . . The week before, the lock attendants noticed a mother wood duck with five young swimming in the vicinity of the lock gates below the dam. Within the next few days three of the youngsters disappeared and were assumed victims of muskellunge. On July 25 the mother duck and the two young, still unable to fly, swam into the lock; the gates were closed, the water level raised and the upper gates opened. Mother duck and young swam out, first case on record of duck "locking" through!—**District Warden Stanley Pavlakovich** (Allegheny)



1



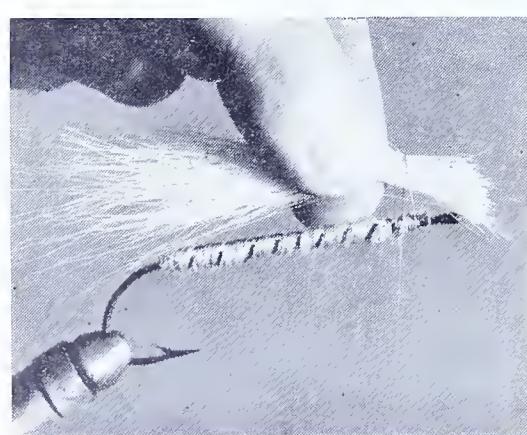
2



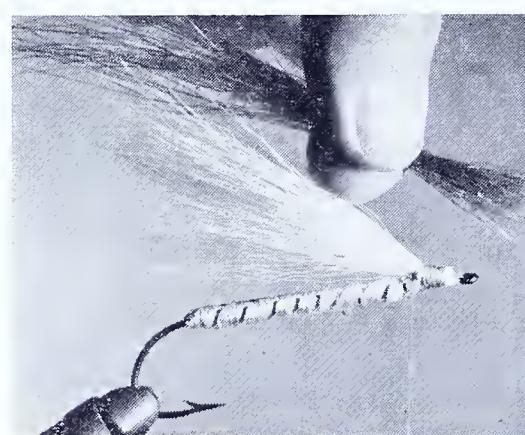
3



4



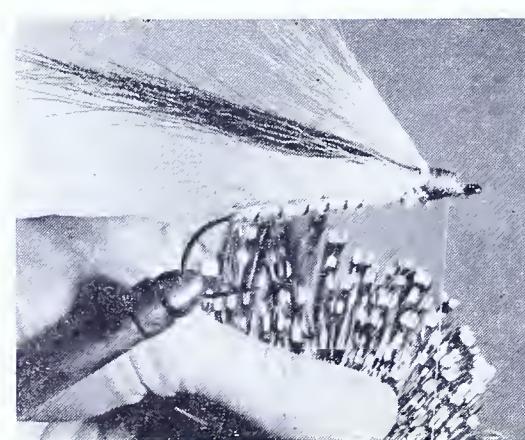
5



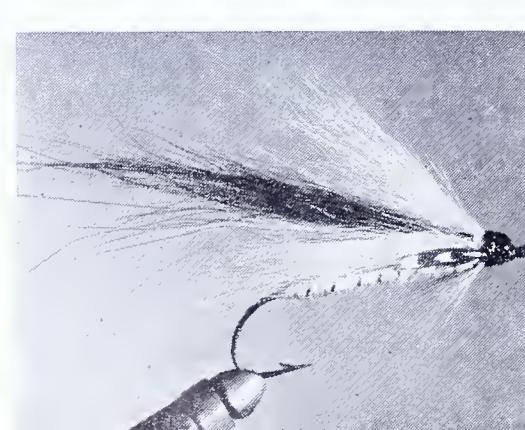
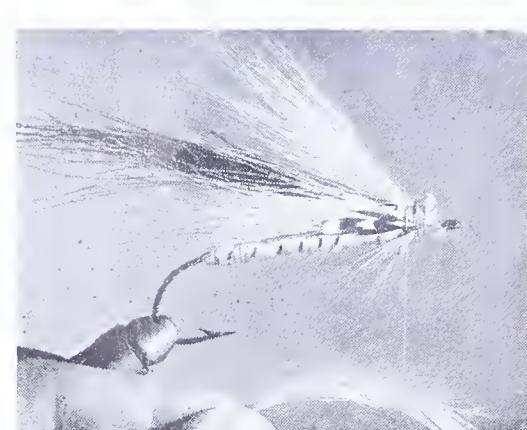
6



7



8



BIG WILLOW-LEAF-type spinner is tops
1- for a spinner and fly combination for
muskellunge.

COMMENCE TYING long strands of
2- wool yarn, floss and tinsel to the shank
of hook. Hook size is 7/0.

3- WIND BODY material in place and rib
with tinsel.

4- SELECT longest bucktail or polar bear
hair available. Polar bear nearly six
inches in length is used here.

5- CUT A BUNDLE of hair. Hold it on top
of shank near eye of hook and wrap ty-
ing thread over this material.

6- USE ALTERNATING COLORS of hair
to give a striped effect.

7- LACQUER the root of the wings to hold
them firmly in place.

8- BIND THE WINGS tightly, then add
Jungle Cock feathers for the cheek.

9- TIE IN bundles of fibers from a large
saddle hackle. Red is a good color to
represent GILLS on this fly.

10- COMPLETED MUSKY FLY. Sure looks
BIG but it's DEADLY!

Tackle Tips

THE MUSKY FLY

By DON SHINER

SUNRISE is the magical hour for musky fishing. As the glimmering rays of the sun filter through the haze on the horizon, though still too dark to see how to tie a knot in the fishing line, this is the hour when big muskies prowl! Like tigers waiting in ambush, the big brutes slam into fat chubs that waltz their morning stroll through the park weeds, or into frogs that yawn from a night of slumber on top the lily pads.

Frequently the object that sparkles a peek of midday below, tantalizing the muskies into rushing in for breakfast, is a colorful bucktail fly and silver spinner that is retrieved ever so expertly by an angler. Truly, the episode that follows is an electrifying moment for fish and fisherman alike!

A search of the records indicates that more muskies are caught each year with a spinner and fly, than with perhaps all other lures, including the much favored spoon and plug that kicks up a healthy rumpus top side. The spinner and fly, however, can not be midget in size. It must be huge—eight to twelve inches in length—to give visions of a suitable sunrise breakfast.

So, this month, in TACKLE TIPS, we would like to present the Musky Fly, and illustrate how the most inexperienced fly tyer can bundle the feathers and be off on the trail of this king-size pike.

As one would suspect, this giant bucktail is fashioned in much the same manner as ordinary trout streamers. Only in size do they differ. Whereas a No. 6 or 8 hook is adequate for trout, a whopping big 7/0 or 6/0 hook is a must for the husky musky.

Steps involved in fashioning this lure begin with winding yarn and tinsel around the hook shank to build the body. Next, bunches of polar bear hair, measuring five to six inches in length, are tied to the shank behind the eye of the hook. Lacquer the roots of these wings to hold them firmly in place. Finally, add a Jungle Cock cheek, contrasting material for a throat, and the fly is complete.

The "willow leaf" design spinner is the style most advised for muskies. This style blade is more impressionistic of a dashing minnow. A two and a half-inch blade is not too long. Select one of silver or one of gold.

This fly offers a change of pace after tying tiny trout flies. Indeed, it is almost a radical departure, for the giant hook and pounds of material provoke thoughts of fishing for whales. But a musky is a whale of a fish on anyone's casting line.

The pattern Musky Fly being tied here is as follows:

Hook—7/0, 6x long shank, ringed eye.

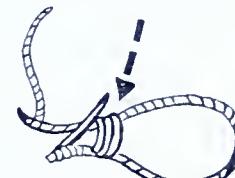
Body—Wool yarn, topped with yellow floss and tinsel.

Wings—White and green polar bear hair.

Cheek—Jungle Cock.

Throat—Red saddle hackle fibers.

THE HOOK WHEN NOT
IN USE WAS LASHED TIGHT
TO KEEP IT SPRINGY.



INDIAN
FISHING
HOOK.



THE BAITED HOOK WITH
PEG TO KEEP IT OPEN.

Youth Outdoors

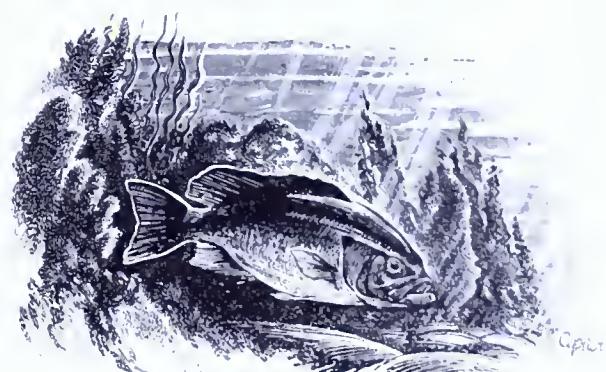
The Indian Was a Master

I think of the patient Indian of long ago who caught his fish on a hook fashioned from a piece of wood attached to a line made of the inner bark of cedar trees. The Indian was a master at using wood for many articles. It was no trouble for him to make a hook that would catch fish.

Hooks were made from various types of wood, but the best ones were fashioned from fir. A large branch was shaped by constant rubbing with a piece of bone. When the wood was smoothed to the desired thickness it was cut to a length of 15 inches and the cut piece wrapped in a thick bundle of wild grasses and buried in the hot ashes from a fire, where it remained for hours to receive a good steaming. Then the wood was ready to be bent into shape.

When the hook was formed it was firmly bound to prevent spring-back and hung up and left to dry in the sun. After the hook was thoroughly seasoned it was rubbed with hot bear fat and pitch to waterproof it and prevent it from becoming soft in the water. The barb for the hook was made of bone and lashed to hook with a fine thong of buckskin.

The Indians made their lines from the inner thread-like bark of red cedar, which was pounded until it formed a sticky floss-like pulp and then rolled on a flat stone with the palm of the hand until the thread was spun. Then, by twisting these threads together, a line was formed and fastened to the hook.—Owen Penfield For.



The Butler City Hunting and Fishing Club has recently issued its 1962 handbook. The booklet is jammed with hunting, angling tips, regulations, the accomplishments and aims of the club along with the club and other officials directory. It is a fine booklet and the club is commended for its issue.

Bow Angling

By H. R. WAMBOLD

SHOOTING into water presents the problem of light refraction to the bow angler. The ability of water to bend and distort the appearance and the true location of any object within it, demands correction for this phenomenon.

A simple experiment to illustrate this oddity can be made by taking a pole or stick about one foot longer than a given depth of water, and sticking it down into the bottom in a vertical position. With a foot protruding above the water line and the water clear enough to permit seeing the part under the water, sight it from various angles and positions. You will find that the part under water seems to bend at an angle. If you were to believe what you apparently see, the lower end of this stick would be at a completely different place than it actually is!

The depth of the water plus the position of available light overhead together with the angle at which you view the object under water regulate the amount of light refraction.

Under Water Fish Deception

A fish sighted swimming several feet under water requires that the bow angler compensate for the optical illusion in order to make a hit.

At times it means that you actually have to shoot behind the fish at it appears to be in the water in order to make a hit. Should the direction of the fish be the opposite you would have to shoot ahead in order to put your arrow where it counts.

There is, however, a maximum depth to which you can expect your arrow to penetrate and still be effective. Several factors control this depth medium . . . weight of the bow, type of arrow, and the distance from the surface of the water where you intend your arrow to enter. Attempting to shoot beyond this depth will result in your arrow yawing and missing its mark.

Under Water Shots

Although getting a shot at carp when they are rolling on top provides top shooting fun, and tests your ability to make a quick and accurate placement of your arrow, there are times when such action does not present itself.

Cruising fish offer good shooting if you find a good spot and wait and watch for them to pass by. Having a fair estimation of the depth of the water in such a location is a big help. Picking a rock or twig on the bottom as a guide in judging how deep the fish is when passing helps in counteracting the light refraction problem.

Taking fish in this manner is best from a boat. Moving slowly so that you can spot the fish ahead of you, it is possible to maneuver the boat closer before shooting.

Wearing a pair of polarized sun glasses will enable you to filter a lot of the light rays when looking into the water, and reduce the amount of light refraction considerably. Such glasses also help to see deeper into the water and spot the fish easier.

Indian summer carp bow angling, although not featuring the splashing action of the spawning run, can produce top shooting fun if you get into the coves and hunt for them in the mud flats. Two men working together in a boat can take turns at the oars while the other rides in the bow looking for the fish. Most carp you spot at this time are usually nice ones.

The foot that is familiar with the grass belongs usually to the man of a lighter heart than he whose soles seldom wander from the pavement.



AUTHOR WITH an early morning ten-pounder taken shortly after daybreak as it cruised along the shore line. Reel being used is a center shot type, bow is a 60-lb. H. Hill recurve fishing arrow of fiberglass, fishing head is a Ben Pierson single folding barb.

Catching a big muskie is a "once in a lifetime" event for most fishermen; but Bill Morris of Chestnut Street, Collegeville, doesn't rate in that category. The third week in July, Bill pulled his fourth muskellunge for this year from the old Perkiomen Creek. Like the other three, this one was caught in the Perkiomenville Dam below the big Suburban Water Co. reservoir. By the way, all the muskies in the old Perky come from the Suburban Water Co. reservoir where they were stocked about four years ago. Bill's muskie last week was 36 inches long and weighed 13 lbs.

Bruce Shupe, 12-year-old son of Mr. and Mrs. Howard Shupe, Visitation Road, Lower Providence Twp., landed a 21½-inch largemouth bass in the Skippack Creek near his home the last week in July. Bruce had previously caught a 20½-inch bass in the Perky near Arcola. These two whoppers plus three big bass that his Dad (Howard) caught, made five big bass, all over 19 inches, that the two Shupes (father and son) have caught thus far this season—*Jay Howard in the Sportscaster, Perkiomen Valley Sportsmen's Assoc.*

*I feel the pulse of nature beat;
The urge to wander, very sweet;
Where leaves are carpets for my feet,—
'Tis autumn, once again!*

Optimist Club of Harrisburg— Fishing Project 1962

As in many years past the fishing project was again a success. During this summer, in the short period of two months, over 800 boys and girls were registered and spent many hours Tuesday evenings and Saturday mornings enjoying themselves with rod and reel, bamboo pole, hand line or what have you. This project affords an opportunity to many children not only to fish but to learn the types of fish and above all to practice sportsmanship.

Many species of fish were caught including black bass, calico bass, carp, catfish, sunfish and perch. The largest fish taken this year was a 22½-inch catfish, but to many of the smaller anglers size means nothing compared to the thrill of landing any fish.

The club thanks the City of Harrisburg for its cooperation and in particular the recreation bureau which helped in so many ways. Each and every member of the Optimist Club derives a feeling of satisfaction out of this program knowing the project here has had the effect of starting others in distant cities.

The Harrisburg Optimist Club always appreciates the opportunity of being able to participate in bringing this program to the children of the greater Harrisburg area.



One for the bucket.



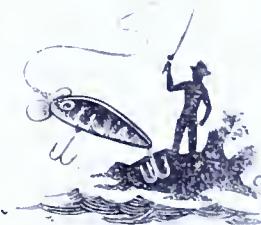
A large measure of patience.



Swing and follow through.



BIG BROWN caught by 15-year-old Dennis Snyder, Windsor, R. D. 1, in Fishing Creek below Windsor. The 22-inch fish was caught on an imitation rubber worm. With the successful angler are his nephews Bill Snyder (left), 12, and Dave Snyder, 8.—*York Gazette & Daily* photo.



Dear Sir:

My husband and son are good sportsmen, have had many nice fishing and hunting trips in Cameron County. Just a year ago, my husband caught two legal bass on an artificial lure, two at one time. This year, fishing the same area in almost the same spot, my son caught two legal bass at one time on the same artificial lure.

Respectfully,
Mrs. Everett Williams
Pittsburgh, Pa.

Lead us to the spot, madam!

"Indian-giver" goes back to colonial times. In those days the Indians apparently expected an equivalent for a gift and if they did not get one they demanded the return of the gift.



Bradford Era Photo

BIGGEST FISH HONORS went to Kathy Kleinberger, 5, of West Branch, Pa., for the 20-inch sucker she caught at the annual Bradford Sportsmen's Club Kid's Fish Pond contest held in Interstate Parkway. In the background are some of the 2,000 youngsters attending the angling classic.

Autumn Quiz

By CARSTEN AHRENS

Now that migration time is here and our feathered friends are all up in the air, let's contemplate in this quiz some of them that used to sing, squawk, yell, or squeak in or over the bullrushes.

(9 or 10 right: MERITORIOUS. 7 or 8: MEDIOCRE. 5 or 6: MY GOODNESS!)

..... 1. Rail	A. A lot of these helped to make Abe Lincoln famous.
..... 2. Flycatcher	B. The sovereign of all anglers.
..... 3. Crane	C. Any old silent movie.
..... 4. Crow	D. Regardless of whether you like your lures wet or dry, you'd hate to have this one hanging around.
..... 5. Killdeer	E. This one makes a mouthful.
..... 6. Hawk	F. What your wife may call your fishing trip.
..... 7. Swallow	G. To do this requires a weapon, license, usually some patience, exertion, and skill. Better wear something red.
..... 8. Kingfisher	H. Don't do this with the trout you've caught or you'll run afoul of the law.
..... 9. Lark	I. What you and your car need on some of those bottomless back roads.
..... 10. Flicker	J. One of a tribe of Indians . . . a constellation that's hard to see up North . . . song of a rooster.

A. 1. D. 2. I. 3. J. 4. G. 5. H. 6. E. 7. B. 8. F. 9. C. 10.
ANSWERS



-----CLIP HERE FOR 46-MAP HUNTING SEASON SPECIAL-----

Send me immediately postage-paid **THE HUNTING SEASON MAPS SPECIAL**

Enclosed is \$5.20 (includes Pa. Sales Tax)

To:

Name _____

Address _____

Town _____

Make check or money order payable to the Pennsylvania
Fish Commission

Mail to—**PENNSYLVANIA FISH COMMISSION**
HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

An All-Season Hunting-Angling Guide for Only \$5.00!
WITH THIS
**HUNTING SEASON
SPECIAL!**

Pennsylvania Waters-Highway Maps

All Counties Except Philadelphia

**Straight-as-a-Bullet
Guides to Familiar and
Off-Beat Game Trails**

or

Late Season Angling

46 MAPS

For Only \$5.00 Full Set

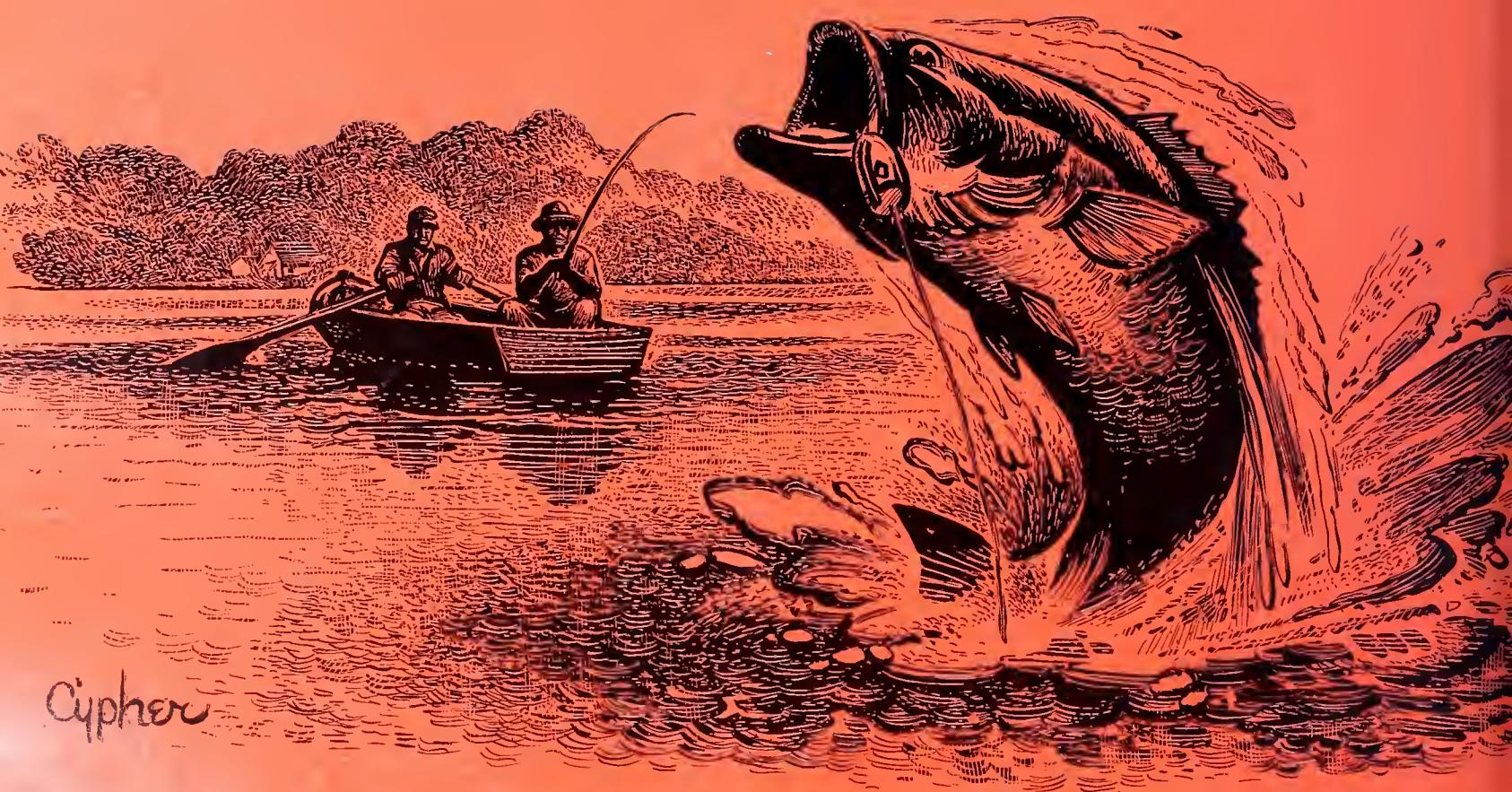
*Plus 4 per cent Pennsylvania Sales Tax...
We Pay the Postage*

**If Purchased Singly the Set
Costs You \$18.95**

You Save \$13.95 With This Offer



Send Hunting Season Map SPECIAL ORDER BLANK on Page 24 Opposite

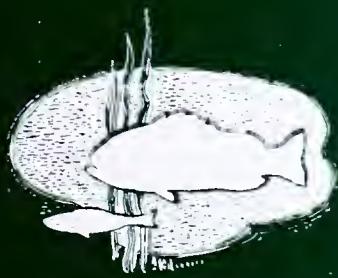


Cyphor

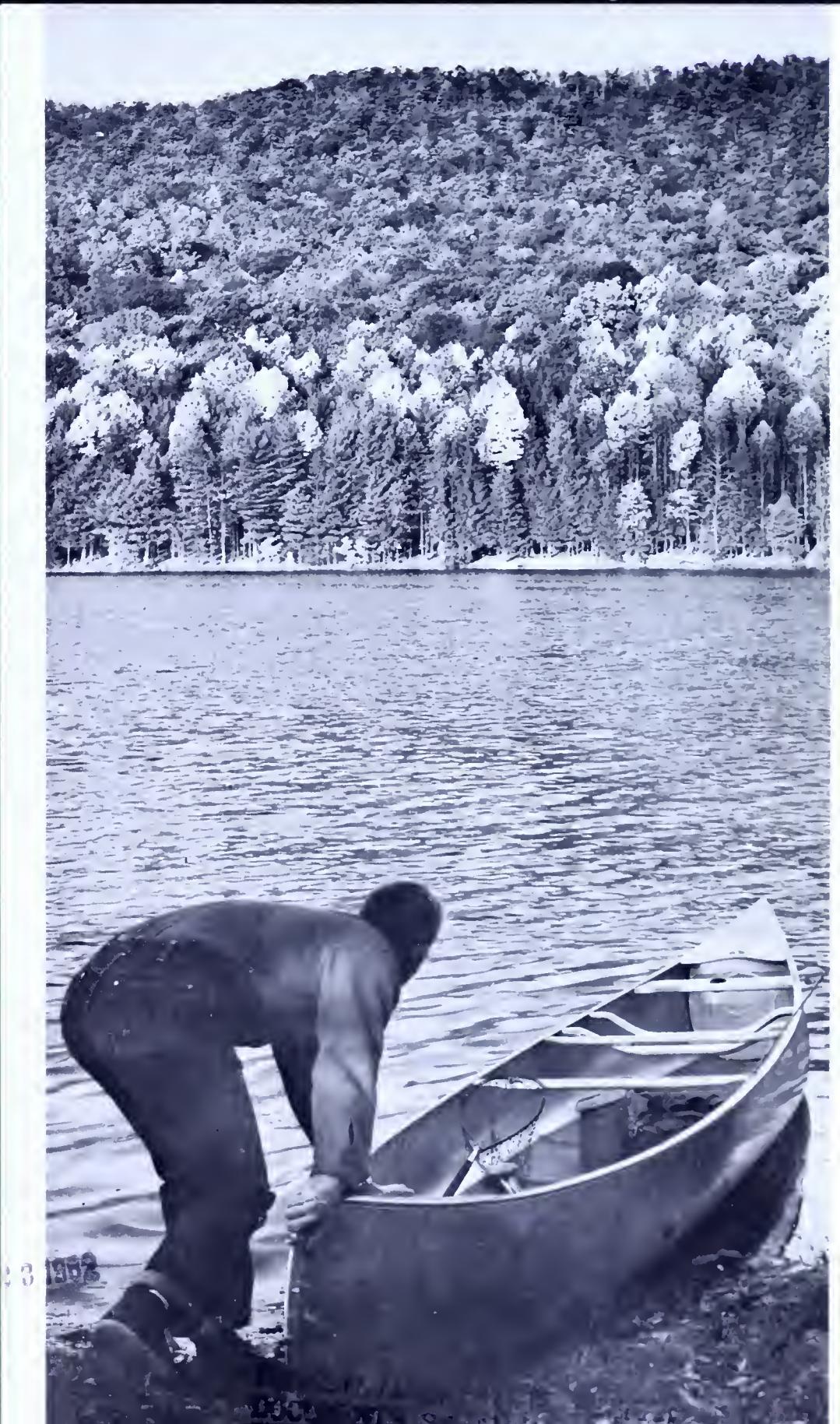
Pennsylvania Angler

Report
to the
Fishermen

November, 1962



P 38-31 c.
1-6



A Turning Point

By ALBERT M. DAY
Executive Director
Pennsylvania Fish Commission

This issue of the ANGLER contains a summary of the work of the Pennsylvania Fish Commission for the year ending June 30, 1962. It outlines in considerable detail the pattern of administration and the numerous accomplishments. It points up the difficult situation in which the Commission finds itself in the face of declining revenues and increasing costs.

Obviously a brief of this kind can bring to the readers only a vague idea of the many problems of this arm of the State Government which carries on a complicated scientific activity. It is difficult to recite the complexities of fishery management so intricately interwoven with land and water use such as in the Commonwealth. Fish must have water—they must have good water if they are to survive. Many of our streams have traditionally been subjected to periodic or long-time fouling by the discharge of industrial and human wastes. Pennsylvania's waters still suffer from the sins of the past. Some of them are constantly poisoned by acid mine drainage from deep or surface mines where the owners years ago removed the coal, then left the shafts and pits open. Now, many years later, the citizens of the Commonwealth are faced with the problem and cost of attempting to cure the economic sins of long ago.

In spite of what at times seems to be slow progress, there is evidence of an increasing public awareness of the problem. New industries in their consideration of places to locate in Pennsylvania are looking for clean waters. Recreation is becoming of growing importance and must rely upon clean waters for its base. New reservoirs for flood control, fishing, boating and recreation are moving into the pattern of water management. Cooperative endeavors such as those encouraged by Public Law No. 566 which provides federal funds through the Department of Agriculture affords opportunities for cooperation by the Fish Commission and other state departments. The Commission is called upon to manage and give expert advice on all public waters within the Commonwealth. So, we are gradually making progress in this field.

While we are moving in the direction of cleaner waters and thereby greater opportunities for management of our fisheries, we are plagued and beset by a growing contraction of our abilities as a public agency to do our share—because of lack of funds. License sales have consistently dropped and while the decline has tapered off during the

past few years the trend is still slowly downward. This has meant a reduction in revenues to the point where drastic cut backs for the fiscal year 1962 were decreed by the Commission. Wherever possible these were put into effect during the fiscal year 1961. During the year the small staff of 14 biologists was reduced to ten. Fortunately, these men were all well trained and found little difficulty in finding other employment in the fishery field with increases in salary. Operations at Commission hatcheries on Spring Creek in Centre County were reduced, partly as an economy move, partly because of the continuing pollution problems below State College. The muskellunge program in the Northwest was reduced as were operating staffs at all of the hatcheries. The long established and exceedingly popular program at Fishermen's Paradise on Spring Creek was terminated as an economy move. Some 12,000 of the large fish held there were distributed throughout the state and the Paradise became a fish-for-fun project.

With great reluctance, the two stream improvement crews were eliminated. Six warden vacancies occurred during the year through retirement and death and were left vacant with neighboring wardens spreading their activities more thinly. All travel expenses were cut to a minimum. Equipment grows older and the physical plant becomes more run down because of lack of repairs.

There is evidence that the people of Pennsylvania do not wish this situation to continue and there is strong hope that the next session of the Legislature will find some means of relief. As proof of general interest in the program of the Fish Commission, the Legislature authorized 14 new fishing and boating projects under the activities of the G.S.A. These are scattered throughout the Commonwealth. Also Project 70 which made its initial start in the Legislature included 5 million dollars for the acquisition of important land and water sites for the Commission out of the 70 million dollar bond issue proposed by this program. A Task Force of the Joint State Government Commission has been giving careful review and apparently sympathetic understanding to our plight.

Thus, while the picture is bleak insofar as funds for current operations are concerned, there is evidence of a turning point in general interest which should permit the Commission to again move forward within the near future.

**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY _____ Chief

Fish Culture

HOWARD L. FOX _____ Superintendent

Real Estate and Engineering

CYRIL G. REGAN _____ Chief

EDWARD MILLER _____ Asst. Chief

Law Enforcement

WILLIAM W. BRITTON _____ Chief

Conservation Education-Public Relations

RUSSELL S. ORR _____ Chief



NORTHWEST REGION

S. CARLYLE SHELDON _____ Warden Supervisor
1212 E. Main St., Conneautville, Pa.
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES _____ Warden Supervisor
R. D. 2, Somerset, Pa. _____ Phone: 6913

NORTHEAST REGION

H. CLAIR FLEEGER _____ Warden Supervisor
R. D. 1, Box 64, Honesdale, Pa.,
Phone: 253-3724

TERRY RADER _____ Fishery Manager
R. D. 3, Honesdale, Pa. _____ Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN _____ Warden Supervisor
1130 Ruxton Rd., York, Pa. _____ Phone: 2-3474
ROBERT BIELO _____ Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK _____ Warden Supervisor
P. O. Box 150, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL _____ Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN _____ Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES _____ Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the

**PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA**

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

MAYNARD BOGART, President _____ Danville

JOSEPH M. CRITCHFIELD, Vice President _____ Confluence

GERARD J. ADAMS _____ Hawley

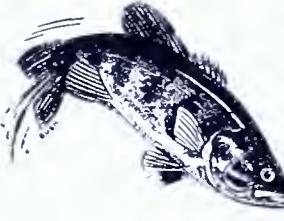
ALBERT R. HINKLE, JR. _____ Clearfield

WALLACE C. DEAN _____ Meadville

R. STANLEY SMITH _____ Waynesburg

JOHN W. GRENOLBE _____ Carlisle

RAYMOND M. WILLIAMS _____ East Bangor



NOVEMBER, 1962

VOL. 31, NO. 11

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

EDITORIAL—A TURNING POINT—Albert M. Day, Executive Director, Pennsylvania Fish Commission

REPORT TO THE FISHERMEN

Fish Commission Accomplishments—June 1, 1961-June 30, 1962

- 2 HATCHERY AND DISTRIBUTION
- 3 FISCAL YEAR REPORT
- 4 ADMINISTRATION
- 4 RESEARCH AND FISH MANAGEMENT
- 7 ENGINEERING
- 9 REAL ESTATE
- 10 LAW ENFORCEMENT
- II CONSERVATION EDUCATION AND PUBLIC RELATIONS
- 12 ANOTHER NEW ACCESS AREA FOR THE FISHERMEN AND BOATERS OF PENNSYLVANIA—Johnny Nicklas photographs
- 14 FINANCIAL REVIEW FOR THE FISCAL YEAR—JUNE 1, 1961 TO JUNE 30, 1962—Paul J. Sauer, Comptroller
- 19 FISH COMMISSION SETS 1963 FISHING REGULATIONS AT OCTOBER 1, 1962 MEETING
- 20 FISHWAYS RESOLUTION APPROVED
- 20-21 SPECIAL FLY-FISHING REGULATIONS SET FOR 1963
- 23 STREAM NOTES



Cover photograph of Cowan's Gap Lake
By Grant Heilman



Bass Fishing at Cowan's Gap
Back Cover photo
By Johnny Nicklas

POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co., Gettysburg, Pa.

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year-\$2.00; three years-\$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

Fish Commission Accomplishments

June 1, 1961, to June 30, 1962

HATCHERY AND DISTRIBUTION

THE integrated trout stocking program between the United States Fish and Wildlife Service and the Pennsylvania Fish Commission was introduced in Pennsylvania this spring for the first time with very good results. Both from the standpoint of public acceptance and the splendid cooperation of the two agencies. It is a giant stride in conservative fish culture. The result of this program will be a greater savings to the state in distribution costs and a better distribution of available trout to the public fishing waters.

For reasons of economy and water quality, a portion of the Spring Creek plant of the Bellefonte hatchery was closed to operation after the trout stocking program was completed this spring. It was also necessary to discontinue the services of a number of personnel in Propagation as an economy measure. This also was reflected in the inability to make much needed major repairs or modern renovations of the physical aspects at any of the state hatcheries.

A large glass sided tank was purchased and put in operation for the first time in the trout stocking program this spring with very good results. It is also being used in the warm-water species distribution program. Its use in trout stocking was confined mostly to the distribution of the large so called, "Bonus" trout that were made available by the change of regulations at the Fishermen's Paradise. These trout were distributed throughout the entire state in the major trout streams.

There were some improvements made to the hatchery facilities in the warm-water stations such as water filters and closed circuit water circulating systems. New techniques were designed in spawn and sperm taking at the warm-water stations which resulted in better fertilization of the eggs thus increasing the percentage of hatch in muskellunge and northern pike. Due also to economy measures it was necessary to make some changes in the method of production of the above mentioned species but in spite of this, we were able to improve any previous year in numbers produced.

In the spring of this year a change was made to a complete pellet diet with the exception of brood stock at the trout hatcheries. It is believed this will result



in a substantial savings in fish food costs. Mechanical sorters are also being used at the various trout hatcheries that have resulted in savings in time and personnel.

The jar method of trout incubation is being used 100 per cent at all hatcheries, which also is a tremendous savings in labor.

Enclosed is a summary report of fish stocked in the waters of Pennsylvania which includes the trout stocked by the Federal Government in the Cooperative Program for the fiscal year June 1, 1961, to June 30, 1962.

FEDERAL-STATE COOPERATIVE TROUT STOCKING PROGRAM

Record of Trout Stocked by Federal Service—1962

<i>Species</i>	<i>Number</i>	<i>Weight</i>
Brook Trout	103,921	23,085.00
Brown Trout	129,491	31,498.00
Rainbow Trout	226,316	64,531.00
	459,728	119,114.00*

*This is not the actual weight stocked, as some of the P.F.C.3's did not have the weight on.

FISCAL YEAR REPORT

The following is a report of the summary of the fish stocked in the waters of Pennsylvania during the period June 1, 1961, to June 30, 1962, showing the species, approximate size, number and weights:

Species	Approximate		Sub-Total	Weight in Lbs.	Sub-Total
	Size	Number			
Brook Trout	6" to 18"	730,638		226,827.82	
Brown Trout	6" to 26"	1,149,383		477,693.46	
Rainbow Trout	6" to 26"	683,003		308,379.09	
Albino Brook Trout	10" to 14"	34	2,563,058	21.29	1,012,921.66
Largemouth Bass	4" to 22"	870		337.08	
Smallmouth Bass	8" to 18"	12,885		10,680.85	
Muskellunge	22" to 38"	16		118.78	
Catfish	8" to 14"	91,360		48,707.00	
Bluegills	2" to 10"	20,873		5,441.16	
Yellow Perch	6" to 10"	22,372		4,734.05	
White Crappies	8" to 14"	15,120		14,770.00	
Black Crappies	6" to 14"	700		256.11	
Carp	14" to 18"	7,650		15,300.00	
Rock Bass	6" to 10"	848		279.16	
White Bass	8" to 10"	700		210.00	
Sheepshead	10" to 14"	22		27.60	
Minnows (Killifish)	2" to 4"	600		2.82	
Channel Catfish	8" to 14"	19,850		10,098.50	
Bowfins	18" to 22"	433		1,623.75	
Alewives	2" to 4"	1,800		23.40	
Brown Bullheads	10" to 14"	500		470.00	
Chain Pickerel	10" to 14"	150	196,749	56.94	113,137.20
Total Adult Fish and Weight			2,759,807		1,126,058.86

Brook Trout	Fingerling	1,332,250		4,499.31	
Brown Trout	Fingerling	508,850		2,335.75	
Rainbow Trout	Fingerling	273,325	2,114,425	1,916.01	8,751.07
Brook Trout	Advanced Fing.	48,500		3,491.26	
Brown Trout	Advanced Fing.	60,500	109,000	4,121.12	7,612.38
Total Brook, Brown and Rainbow Trout Fingerling			2,223,425		16,363.45
Kokanee	Fingerling	18,500		143.23	
Lake Trout	Fingerling	16,000		310.27	
Steelhead	Fingerling	15,000	49,500	25.31	478.81
Total Fingerling Trout			2,272,925		16,842.26
Northern Pike	Fry	900,000		0	
Northern Pike	Fingerling	15,020		405.80	
Eels	Elvers	2,750,000		0	
Walleye	Fry	7,600,000		0	
Walleye	Fingerling	209,200		660.15	
Bluegills	Fingerling	1,150		20.69	
Largemouth Bass	Fry	100,000		0	
Largemouth Bass	Fingerling	247,025		4,441.52	
Smallmouth Bass	Fingerling	43,400		662.27	
Muskellunge	Fry	10,000		0	
Muskellunge	Fingerling	17,770	11,893,565	252.02	6,442.45
Total Fry, Fingerling, etc.			14,166,490		23,284.71
GRAND TOTAL ALL FISH AND WEIGHTS		16,926,297		1,149,343.57	

ADMINISTRATION

Some of the most drastic changes affecting organization and personnel functions in the Fish Commission history occurred during this 13-month period.

The Administrative Division has been reorganized and streamlined to provide more efficient services to the public and the other divisions of the Commission. This was brought about in part by the extensive austerity program. The most important change was the abandonment of field offices staffed with clerical help and the transfer of various duties to the Harrisburg office.

The positions of Purchasing Agent and Budget Examiner were combined. All personnel and payroll functions were assigned to a clerk under the direct supervision of the Administrative Officer. In this 13-month period the Personnel Section processed over 100 separate actions covering appointments, terminations, promotions, demotions, transfers, reallocations, creations and abolishments. Most of these personnel changes resulted from the austerity program instituted by the Fish Commission in August of 1961.

Many of the licenses and permits previously issued in the field offices are now being issued by the personnel in the Administrative Division. Although this is being done with less personnel, rapid service to the public is being maintained.

Licenses and Permits

	<i>Number</i>
Commercial Hatchery Licenses	310
Net Permits	324
Scientific Permits	59
Regulated Fishing Lake Licenses	252
Draw Down Permits	164
Dynamite Permits	19

In addition, this division reviewed and commented on a large number of applications for channel changes, pipe line crossings, dam construction and water allocations.



RESEARCH AND FISH MANAGEMENT

THE goal of the Division of Research and Fish Management is to provide more and better fishing for the anglers of the Commonwealth through better knowledge of the factors affecting fish life and through the application of known fish management principles. The achievements of the Division for the 1961-62 fiscal year have been divided into three categories: (1) Fish Management, (2) Fish Culture Research and (3) General Fisheries Research. Although it was necessary to reduce the biological staff by four men during the fall of 1961 and the spring of 1962 because of budgetary restrictions, important work of the Division continued—though on a reduced basis.

Accomplishments in Fish Management Work

A cooperative trout stocking program between the U. S. Fish and Wildlife Service and the Pennsylvania Fish Commission went into effect in January, 1962. In this cooperative agreement federal and state hatcheries are now stocking trout in Pennsylvania according to a coordinated plan. During the first year of this plan, savings in truck mileage and other costs to the two organizations were effected and there has been a more equitable distribution of trout. The staff at Benner Spring Station assisted appreciably in implementing this program.

Through the help of the Division of Law Enforcement a special creel census was conducted in Tionesta Flood Control Reservoir, Forest County, to evaluate the management plan and to determine fishing pressure and fish catches. This reservoir has consistently been one of the best producers of muskellunge in the state.

A survey to determine the extent of ice fishing on northeastern lakes and the numbers and species of fish taken was continued in the winter of 1961-62 by two biologists.

Lake Jean, in Luzerne and Sullivan Counties, had previously been drained and chemically reclaimed after studies showed unbalanced and stunted fish populations. Stack dust was added to the lake as a neutralizing agent and the lake was re-stocked and opened again to public fishing during the summer of 1961. Good fishing during the first open season resulted from this fish management work.

Stream and lake surveys to determine the suitability of waters for trout or warm-water species were continued. Separate investigations were made of 150 streams and 45 lakes or ponds. Many of the stream surveys were of a "trouble shooting" nature to determine whether these waters were suitable for trout stocking. Lake surveys were more comprehensive and included such basic studies as fish populations, water chemistry and physical conditions. Fish management plans or reports were prepared for the waters surveyed.

Two experiments were continued to test the utilization of hatchery-reared trout when stocked near areas

of heavy human population in easily accessible waters where trout fishing opportunity was at a minimum. In the first experiment, five lakes holding warm-water species in southwestern Pennsylvania were stocked just prior to the opening of the season and thereafter weekly for six weeks. In the second experiment, trout were stocked one or more times during the open season in accessible, lower portions of streams which had not been stocked with trout before. Although complete creel censuses were not possible, fish wardens reported high interest and relatively high catches in these plantings. Utilization of hatchery trout by anglers is probably much higher in these non-trout waters than in the less accessible and smaller headwater trout streams.

Angler interest in the muskellunge is increasing each year in Pennsylvania due to the Fish Commission's plan over the past few years of introducing this big game species into more than thirty waters where they did not formerly occur. In practically every water where they were introduced, muskellunge over thirty inches (the minimum legal size) were being taken by anglers after a period of two or three years. Test netting by the biological staff showed excellent survival and growth of these muskellunge which were planted as fingerlings.

Commission biologists continued to make pre-impoundment studies at potential dam sites. Comprehensive fish management plans were prepared for lakes built by the Pennsylvania Fish Commission, the Pennsylvania Department of Forests and Waters, the U. S. Corps of Army Engineers and the Soil Conservation Service.

Biologists again assisted the Division of Propagation and Distribution in obtaining northern pike and muskellunge breeders in Lake Erie by means of a big water electro-fishing unit. By means of this equipment breeders are caught, stripped and returned to the lake unharmed.

A limited number of public demonstrations were conducted in several parts of the state with electro-fishing gear to give anglers an opportunity to actually see the fish in their favorite streams. As many as 200 observers attended some of these demonstrations.

In order to determine how the Susquehanna River can support better fishing, two biologists spent considerable time on the main stem and the North and West Branches determining water quality and making studies of the fish populations and the factors affecting them. Information obtained is being used currently in the U. S. Corps of Army Engineers' six-year comprehensive study of the Susquehanna River. A study of the effects of acid mine drainage on the West Branch of the Susquehanna River and its tributaries was continued.

The biological staff cooperated with the Pennsylvania Department of Health in numerous stream pollution cases during the period. The most important of these was the pollution on the North Branch of the Susquehanna River, where by virtue of previous biological



studies, it was possible to make an accurate assessment of the loss of fish and fish habitat due to pollution.

The contributions of the Division to public relations activities continued and increased manyfold. Lectures and displays were presented to many sportsmen's groups, Boy Scouts, service clubs and other organizations. The demand for special instructional programs for teachers, junior conservationists and professional societies increased. The staff at Benner Spring conducts over fifty tours annually for fisheries workers and others from many states and foreign countries.

Miscellaneous work accomplished in fish management included assistance to the team of Bell and Holmes who were preparing plans for fish passage facilities at the lower Susquehanna River dams, assistance to the U. S. Fish and Wildlife Service in their study of the successful shad run up the Delaware River in 1961 and 1962, participation in the tri-state study of the Delaware River, attendance at several meetings with other states to develop uniform regulations and fish management plans for boundary waters, aging of fish scales sent in by fishermen, assistance to the Division of Real Estate and Engineering in planning types and locations of stream improvement devices and furnishing material to the Division of Conservation Education for use in "Fishing and Boating in Pennsylvania" and other publications as well as preparation of numerous displays.

Accomplishments in Fish Culture Research

Important contributions to research, management, fish culture and conservation education were culminated in publications in technical journals, the PENNSYLVANIA ANGLER or mimeographed copies available



from the Benner Spring Fish Research Station. A listing of publications completed during the last year is given below:

<i>Title</i>	<i>Publication</i>	<i>Remarks</i>
Modification for Jar Culture of Trout Eggs	Progressive Fish-Culturist	Fish Culture Research
An Automatic Feeder for Trout	Progressive Fish-Culturist	Fish Culture Research (in press)
A Water Filter for Egg Incubating Units	Progressive Fish-Culturist	Fish Culture Research (in press)
Age and Growth of Pennsylvania Fishes	PENNSYLVANIA ANGLER	Management (Education and Information) (series)
Distinguishing the Fishes of Pennsylvania	PENNSYLVANIA ANGLER	Education and Information (series)
There's More Than One Way to Leave a Mark on Life	PENNSYLVANIA ANGLER	Branding, Management and Fish Culture
Literature Survey of the Life History of the Redfin and Grass Pickerel	Benner Spring Fish Research Station	Mimeographed copies
Literature Survey of the Life History of the Northern Pike	Benner Spring Fish Research Station	Mimeographed copies
The Relation of Feeding Before Stocking to Catchability of Trout	Journal of Wildlife Management	Cooperative Project with Pennsylvania State University
Immunogenetic Studies in Two Trout Species of the Genus <i>Salmo</i>	Annals of New York Academy of Sciences	Cooperative Project with Pennsylvania State University

A new study of how blood analysis might aid in producing better trout through improved diets was initiated. This study is supported by a \$1,200 grant awarded to the Benner Spring Fish Research Station by the Cooperative Grange League Federation (GLF).

Particular emphasis will be placed on finding an inexpensive, more efficient diet to color trout.

A barrel system of starting and rearing fingerling trout was perfected. This system will increase the holding capacity of a hatchery building four to six times.

Research on northern pike and muskellunge was continued. Improvements on fertilizing and hatching muskellunge and northern pike eggs have been achieved. This project was in cooperation with the warm-water production hatcheries.

In addition to research and management accomplishments at the research station during the past fiscal year 440,440 legal size trout weighing 114,973 pounds were transferred to the Bellefonte production hatchery for planting in the waters of the Commonwealth.

Accomplishments in General Fisheries Research

Included in this category are reports of projects which are general in nature as well as some which are closely related to fish culture or fishery management but have not been previously described. These include projects on weed control, disease, special stream studies, etc.

The first large scale testing of drugs for therapy of whirling disease in trout has been completed. The drug, acetarsone, was the last tested but failed to provide control of this parasitic disease although it had been reported to be effective against whirling disease in Italy. A paper was prepared for publication on whirling disease of trout. This was a cooperative effort with the U. S. Fish and Wildlife Service and is being published by the latter agency.

A cooperative project with the Pennsylvania State University on fish furunculosis is continuing. The effect of immunizing trout sac fry and oral methods of immunization against the disease are being investigated. A practical application of the one-shot vaccine developed previously is being evaluated in a large group of brown trout brood stock. Protection against this damaging disease would be particularly valuable during the added stresses of the spawning season.

A paper on "fish-for-fun" in cooperation with the U. S. Fish and Wildlife Service entitled "Development and Success of Catch-and-Release Angling Programs" was presented at the national meeting of the American Fisheries Society. This paper describes the pioneer fish-for-fun work and philosophy as developed in Pennsylvania and other states.

A cooperative project with the U. S. Fish and Wildlife Service Laboratory at Leetown, W. Va., was initiated to study infectious pancreatic necrosis, a virus disease of trout. Preliminary findings indicate that some brook trout brood fish carry the disease in the ovarian fluid.

Research on fish diseases is continuing and includes further work on whirling disease and a study of normal and abnormal components of fish blood in relation to disease. The latter involves the application of clinical pathological methods now used in human and veterinary medicine to the fishery field.

ENGINEERING

DURING this fiscal year, a change in organizational make-up was effected which saw the combining of the Engineering Division and the Real Estate Division. These programs are so interrelated that no clear cut line of responsibility could be defined. Property acquisitions depended upon engineering surveys and development depended upon the acquisition of suitable areas.

Properties acquired were given a thorough review to determine the least costly way to make them usable by the public and new property being acquired was investigated on the basis of total cost to the Commission for the developed product.

Personnel of this department were used primarily in supervisory capacity, hiring local people to do the work wherever possible, and only because of this method were we able to accomplish the stream improvement projects, the lake and river access area developments, the investigations of dam sites, existing water areas and potential acquisitions. Trained men formed the nucleus for the work force in our dam construction program and our professional engineers were assigned to projects involving Commission funds being constructed by contract or other federal or state agencies.

Coordination of programs and personnel of the combined Division has been successful and has resulted in refinement of procedures for acquisition and development which not only produced a saving of Fish Funds but provided better acquisitions, better developments and less maintenance requirements.

It has been a year in which more was accomplished than originally planned in the Capital Budget Program, for less money than had been anticipated, with a better finished product. The following pages do not include the complete total of all work done by this department but it does serve to indicate the scope of the major portion of our activities.

Engineering plans and specifications were completed for the public road relocations and construction of public use facilities at Tamarack Lake, Crawford County; for construction of Meadow Grounds Dam, Fulton County, and for development of ten access areas located throughout the Commonwealth.

Topographic surveys were completed as required for the above projects.

Property surveys were conducted on Hammer Creek Dam Site, Lancaster County; Negro Glade Dam Site, Somerset County; Big Yellow Creek Dam Site, Indiana County; Walnut Creek Hatchery and access area, Erie County; East Branch Martin's Creek Dam Site, Northampton County; Baltimore and Ohio Reservoirs, Jefferson County; Pleasant Mount Hatchery, Wayne County; Juniata River, Raystown Branch access site, Huntingdon County; Susquehanna River access site, Oakland Township, Susquehanna County and Juniata River access site at confluence of Raystown Branch and Juniata River, Huntingdon County.

Topographic surveys, in addition to the projects with completed plans and specifications, were conducted on East Branch Martin's Creek Dam site, Northampton County; Hammer Creek Dam site, Lancaster County; Canoe Creek Dam site, Blair County; Mountain Springs access road, Luzerne County; Pleasant Gap Hatchery parking area, Centre County; Tamarack Lake, Crawford County; Negro Glade, Somerset County; Hunter's Lake, Sullivan County; Foster Property, Corry Hatchery, Erie County; Walnut Creek Hatchery, Erie County; Barrier Dam between Upper Woods and Lower Woods Ponds, Wayne County and the following planned access sites: North Branch, Susquehanna River, Laceyville, Wyoming County; North Branch, Susquehanna River, Terrytown, Bradford County; Susquehanna River, Oakland Township, Susquehanna County; Juniata River access site, at confluence of Raystown Branch and Juniata River, Huntingdon County; Susquehanna River, Conowingo Reservoir, Muddy Creek access, York County; and Delaware River, Milford, Pike County.

Preliminary investigations were conducted on Upper Neifert's Creek Dam site, Schuylkill County; Sewickley Creek Dam site, Westmoreland County; and twenty-five dam sites located throughout the Commonwealth, for inclusion in the proposed Project "70."

The Engineering Department provided valuable assistance to the consulting engineering firms assigned to design Negro Glade Dam, Somerset County, and Hammer Creek Dam, Lancaster County; and also helped to coordinate all engineering work needed to initiate the G.S.A. program.

The reconstruction of Stevens Lake (62 acres), Wyoming County, was completed on July 31, 1961, and the reconditioning of existing dam, construction of 3.6 miles of paved access road and 50-car paved parking area with boat launching ramp was completed at Brady's Lake (229 acres), Monroe County. These two projects were part of the Dingell-Johnson program.



The following dam developments were under way as of June 30, 1962:

Beechwood Lake and Dam (67 acres), Tioga County

Construction of earth fill dam 63 feet in height with concrete control tower by the Soil Conservation Service on a contract basis. Relocation of Township road and construction of public use facilities by Fish Commission personnel.

Tamarack Lake and Dam (574 acres), Crawford County

Construction of three earth fill dams averaging 24 feet in maximum height with concrete control towers and clearing of the Lake site by the Soil Conservation Service on a contract basis.

The Beechwood Lake project, in Tioga County, and Tamarack Lake project in Crawford County, are being developed in cooperation with the Soil Conservation Service of the United States Department of Agriculture and are combined flood control and recreation developments. Under this plan, the Pennsylvania Fish Commission is responsible for land purchases and right-of-ways, road and utility relocations, construction of public use facilities and maintenance. The Soil Conservation Service is responsible for the construction of the dams and appurtenances. Upon the completion of the project, the Pennsylvania Fish Commission will have ownership of the entire development.

The following access areas were developed, or improved:

Stump Pond, Susquehanna County

10-car parking area and boat launching ramp

Delaware River, Buckingham Township, Wayne County

Entrance road, 30-car parking area, paved launching ramp

Delaware River, Lehman Township, Pike County
25-car parking area, paved launching ramp

Delaware River, Upper Black Eddy, Bucks County
15-car parking area, concrete beams and paved launching ramp

Delaware River, Yardley, Bucks County
40-car paved parking area, concrete beams and paved launching ramp

Allegheny River, Starbrick, Warren County
25-car parking area, concrete beams and paved launching ramp

Juniata River, Raystown Branch, Huntingdon County

Construction of 1.3 miles of access road, 100-car parking area, precast toilets and boat launching ramp

Letterkenny Reservoir, Franklin County
Improved 1,200 foot of access road and constructed boat launching ramp and mooring facilities

Susquehanna River, Wrightsville, York County
Boat launching ramp widened and improved

Conestoga Creek, Slackwater and Rockhill, Lancaster County

Completed demolition of old power buildings, graded and seeded area and provided parking facilities

The following stream improvement projects were constructed for improvement:

Bob's Creek, Blair County

Work on approximately 1½ miles of this stream consisted of:

1. Sixteen (16) single-log dams
2. Removed three (3) major choked-channel areas

Big Fishing Creek (Orangeville), Columbia County

Work on approximately ¼ mile of this stream in the old Orangeville Dam area consisted of:

1. Blasted dam footer to depth of thirty-nine (39) inches
2. Anchored three (3) single-log deflectors
3. Cribbing 75' long x 20' wide x 10' high, floored a width of seven feet, set on piling, and filled and covered with approximately 750 tons of gravel.
4. Removed and placed on banks approximately 6,000 tons of gravel from creek bed
5. Placed temporary gravel deflector to direct water into new channel in contour of stream

Asaph Run, Tioga County

Work on approximately 2 miles of this stream consisted of:

1. Five (5) large log dams
2. One (1) heavy log cribbing
3. One (1) deflector cribbing
4. Approximately 200 feet of bank channel change

Maintenance and repairs were conducted on Medix Run, Elk County; Dunbar Creek, Fayette County; East Licking Creek, Mifflin County; and Spring Creek, Centre County.

In addition, the Engineering Department also completed the construction of a new maintenance and storage building at the Pleasant Gap Hatchery, Centre County; repaired dam and spillway at Icedale Lake, Chester County; improved access road and repaired eroded dike at Benner Spring Research Station, Centre County; improved maintenance personnel quarters at Opossum Lake, Cumberland County; designed heating systems for installation at the Hatchery building, Pleasant Gap Hatchery, Centre County and the Hatchery building at Erie Hatchery, Erie County; designed refrigeration room at Reynoldsdale Hatchery, Bedford County; paved parking area and service roads at Pleasant Gap Hatchery, Centre County; designed and constructed masonry barrier dam between Upper Woods and Lower Woods Ponds, Wayne County; and constructed precast concrete boat ramp beams and public toilets at Pleasant Gap Hatchery for installation at various access areas and dam sites.

REAL ESTATE



THE past fiscal year was probably the most significant year for the fishing and boating public since the start of the acquisition program in 1947. The year 1961 saw the Real Estate Division merge with the Engineering Division. It saw the adoption of a program to provide water, and access to water, under the provisions of Act No. 685 whereby the General State Authority will acquire or construct lakes and access areas within the next few years which would have taken many, many years if we depended upon funds available from the Fish Commission's Capital Budget.

The year 1961 saw the first approving step in Project 70 which, if approved by the Legislature in 1962 and the voting public in 1963, will provide the funds needed to acquire dam sites, access areas, trout stream low-flow augmentation dams, natural springs and areas which currently are being investigated for multi-purpose impoundments by the Soil Conservation Service.

It saw a revision of the agreements with property owners to permit fish refuges on trout streams to provide a more consistent fishing pleasure. It saw streams being improved with the cooperation of County welfare recipients.

Besides the many investigations made at various properties being considered for acquisition, the personnel of this division worked actively in securing leases on waterfront lands owned by individuals, corporations, communities and other state and federal agencies. Union City Borough opened its water reservoir to the fishing public. The Highways Department made available its old tree nursery area. The Game Commission and the Department of Forests and Waters have cooperated to the fullest extent in making their lands and waters available for development for public use.

Under the program of cooperation with the U. S. Department of Agriculture, Soil Conservation Service, the needed land was acquired for construction of two multi-purpose lakes. Tamarack Lake in Crawford County will create a 574-acre lake and the 67-acre Beechwood Lake will be created near Sabinville in Tioga County. We are actively working on some twelve other such projects.

The outcome of these proposed lakes depends entirely upon approval of Project 70 by the public. This project will give to Pennsylvania the kind of program required to fill the minimum needs for our citizens in the field of outdoor recreation.

The General State Authority program saw the completion of additional acquisitions at the Negro Glade Dam Site in Somerset County which presently is under Design Contract. This will create a lake of over 350 surface acres. Headway was made in completing settlement on properties in the Hammer Creek Lake Project which also is under Design Contract by General State Authority. Progress is being made on all other General

State Authority projects for the Commission.

Additions to the Walnut Creek Access Area on Lake Erie were completed as well as to one of the areas on the Juniata River. Seven new access areas were acquired on various rivers and lakes during the past year. Additions to the Stevens Lake property in Wyoming County were completed.

Real progress was made in the development of access areas by combining the manpower and know-how of maintenance and development personnel. Work was continued throughout the winter which gave the personnel a chance to work together and produce the techniques which speeds up the job and saves money and time. New ideas were explored on the construction of docking and loading areas and the results have had increasingly favorable comment.

Our Sign Shop continues to turn out the signs so familiar to the public. Rebuilding old signs, fabricating new signs and touching up those that have been weathered is a full-time project for the Maintenance Shop at Pleasant Mount.

The development and subsequent use by the public of an additional twenty access areas in two years increases the burden of maintenance of the limited staff of personnel dedicated to maintaining Commission properties in the best state of repair and a presentable condition. Spraying the poison ivy, cutting brush, removing rubbish and trash, repairing access roads, ramps and parking areas, installing additional boat mooring areas and cables on over one hundred areas scattered throughout the state is a tremendous responsibility willingly accepted and faithfully performed by this very small group of men.

The accomplishments of the Engineering Department of this Division are detailed elsewhere herein and it should be noted that with each developed area each year, the total increase in Commission properties is a net gain to the boating and fishing public as well as to all citizens, but it should be further noted that the areas must be maintained and this will continue as long as the Commission controls these areas. The cost of maintenance will continue to raise and additional personnel must be involved.

To alleviate the situation as much as possible, agreements with communities provide for the normal janitorial services to be furnished by their regular maintenance crews. In some cases, Sportsmen's Clubs are willing to take the time to clean the weekly pile of trash and rubbish but this does not provide for the maintenance needs caused by public use or weather. But every bit of help is appreciated and requested.

LAW ENFORCEMENT

THE most outstanding accomplishment in the Law Enforcement Division during this period was the preparation and adoption of a uniform procedure in estimating and computing numbers and species of fish killed in stream and lake pollutions. With the assistance of Fishery Manager Robert J. Bielo, a schedule was prepared and put into operation in April, 1962, by the Law Enforcement Division. A brief summary of this new procedure follows.

On small streams, and where the polluted area is less than three miles in length, an actual count is made of the species and sizes. In larger streams, upstream and downstream limits of affected water are established, and the surface area estimated. Once the average width of the kill zone is determined by making measurements at intervals over the length of the kill zone, the warden is able to establish the size of the polluted area. If the kill extends beyond three miles the warden divides the area into sections and makes actual counts on at least ten per cent of the entire area.

All wardens have been supplied with a chart which they use in making the estimates, both of the polluted area and the number and species of fish killed. He uses work sheets in arriving at the cost of dead fish. A list showing the market value of the different species and sizes of fish is used to compute the total cost moneywise.

It is recognized that damage to fish food and other aquatic life should be considered in certain cases of pollution, but it would be difficult to establish a value for these items without having former knowledge of the quantity and quality of them in the particular stream.

Industrial waste ranks first in number of fish kills,

with agriculture poisons and silo drainage in second place.

From June 1, 1961, to June 30, 1962, fifty-seven voluntary contributions were made to cover damages to fish life for the sum of \$24,129.37. It was necessary to prosecute twenty-three cases which resulted in penalties amounting to \$4,600.00, making a total of \$28,729.37.

During this period some statistics were compiled concerning the ages of persons apprehended for violating the Fish Laws. The following facts were revealed.

Under 20 years of age	12.7%
Between 20 and 30 years of age	37.1%
Between 31 and 40 years of age	21.7%
Between 41 and 50 years of age	15.4%
Between 51 and 60 years of age	8.5%
Between 61 and 70 years of age	3.9%
Between 71 and 80 years of age	7.0%

Fishing without a license far exceeded any other single infraction of the Fish Laws.

The present contingent of law enforcement personnel consists of forty-six wardens, six regional warden supervisors and a chief enforcement officer. The number of wardens was reduced to forty-six in order to live within our present budget. It should be explained that retirees have not been replaced. It was not necessary to discharge or lay off any personnel.

The rate of convictions in the Courts in Pennsylvania was better than ninety-five per cent. This indicates the fish wardens have acted wisely and applied the training they have received over the years in law enforcement procedures and related matters.



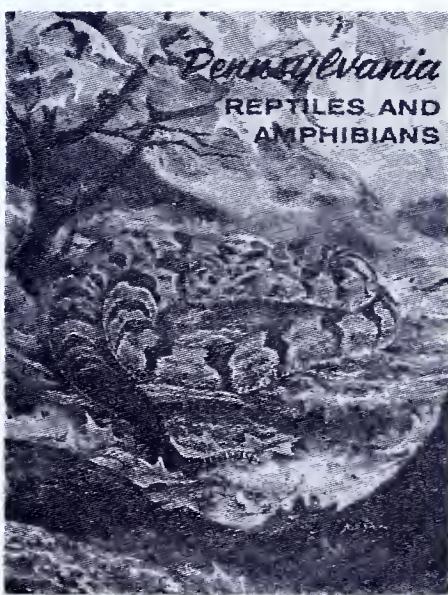
CONSERVATION EDUCATION

AND PUBLIC RELATIONS

THE Conservation Education and Public Relations Division of the Pennsylvania Fish Commission, in keeping with its objective to inform and educate the public on matters concerned with fish and fishing in the Commonwealth, has carried out an accelerated program which has brought about a greatly expanded distribution of information concerning Fish Commission activities to newspapers, radio and television stations, outdoor columnists and the fishing public.

The division has been responsible for the publication of the PENNSYLVANIA ANGLER. This monthly magazine has been distributed to 13,313 paid subscribers at a subscription rate of \$2 per year. Also, 4,375 complimentary copies have been sent to public libraries, school and college libraries, sportsmen's clubs secretaries, Commission field personnel, and other state and Federal conservation agencies. Other publications sold included approximately 10,000 copies of "Pennsylvania Fishes" for a total of \$2,305.65, and nearly 15,000 Waters-Highway Maps for a total of \$5,870.21.

During the year the free distribution of educational materials included 40,000 "Pennsylvania Reptiles and Amphibians," 25,000 "Fish Culture in Pennsylvania," 42,000 "Fishing Waters in Pennsylvania," and 30,000 "Public Fishing and Boating Properties and Facilities."



In addition, more than 65,000 one- and two-page reprints from the PENNSYLVANIA ANGLER, more than 50,000 wallet cards to be used in estimating the age and weight of fish, 10,000 "Stream Improvement Guides," 10,000 "Pennsylvania's Muskellunge Program," plus several thousand copies of the fish law summaries and motorboat rules and regulations were distributed.

The Fish Commission's slide lectures were shown to more than 200 groups for a total attendance of 13,841.

The live fish exhibits were presented at more than thirty county fairs and other local exhibitions, in addition to three major sports shows and the annual Farm Show, with a total attendance in excess of two and one-half million people.



Public relations activities have included the state-wide distribution of fifty-five news releases concerning Fish Commission activities. These releases normally go to more than 1,200 newspapers, radio and television stations and outdoor columnists. Beginning with the opening of trout season, a weekly report of fishing conditions was sent out to all news media. A special report on ice fishing conditions was distributed from December through February.

The Commission's staff photographer provided the PENNSYLVANIA ANGLER, as well as news media such as newspapers and television stations, with current pictures of Fish Commission activities. He also produced color slides which are used for the production of slide lectures, as well as for other public relations functions of the Commission.

In order to carry the Fish Commission's message to the public, the division chief made more than fifty appearances at public meetings throughout the Commonwealth. These included meetings of many sportsmen's groups, service clubs and other organizations. Here the district fish wardens have assisted greatly in our public relations program. In addition to attending many of the monthly meetings of groups in their respective districts, they also were frequently called upon to provide slide lectures and other special programs.

Another New Access Area for the



NEW WEST FAIRVIEW ACCESS AREA at the confluence of the Conodoguinet Creek and the Susquehanna River has ramp and other facilities including a 25-car parking lot of crushed stone.

Fishermen and Boaters of Pennsylvania

ADD WEST FAIRVIEW ACCESS to the more than 100 similar areas throughout the Commonwealth for the use of fishermen and boaters. The new access, recently completed, is a cooperative project by the Borough of West Fairview and the Pennsylvania Fish Commission. It is located on the west shore of the Susquehanna River at the confluence of the Conodoguinet Creek, two miles north of West Shore Exit of Harrisburg's Harvey Taylor Bridge. An amesite boat ramp extends to the water's edge where cars and boat trailers can be conveniently backed to the water for fast unloading and loading. The adjoining area includes a crushed stone covered 25-car parking lot. Other facilities include a boat mooring area where boat owners, with permits, may moor their boats for extended periods. About 200 yards of the Conodoguinet Creek and the Susquehanna River have been deepened to allow easy access to the main channels of the river. The site, an old-time favorite fishing spot of generations of anglers, will open new fishing and boating opportunities within easy reach of metropolitan Harrisburg.

Photographs by Johnny Nicklas, Chief Photographer, Pennsylvania Fish Commission



SKYLINE OF THE CAPITOL at Harrisburg is visible from launching ramp. Susquehanna is at lowest ebb in years, a victim of severe summer drought.

FINANCIAL REVIEW FOR THE FISCAL YEAR

JUNE 1, 1961 TO JUNE 30, 1962

By PAUL J. SAUER, Comptroller

Financial operations of the Pennsylvania Fish Commission for the 1961-1962 fiscal year are outlined in detail in the following series of statements, supporting schedules and charts. Further delineation is provided in the form of comments with respect to each schedule.

In order to complete the picture of the status of the "Fish Fund," expenditures of other State Departments authorized to expend monies from the Fish Fund are also included.

SCHEDULE NO. I CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF JUNE 30, 1962

CASH		\$1,334,712.84
LESS: LIABILITIES AND WORKING CAPITAL:		
VOUCHERS PAYABLE—PENNSYLVANIA FISH COMMISSION	\$ 8,461.43	
ENCUMBRANCES—PENNSYLVANIA FISH COMMISSION	140,596.44	
ENCUMBRANCES—DEPARTMENT OF REVENUE	746.46	
RESERVE FOR WORKING CAPITAL	800,000.00	949,804.33
NET BALANCE AVAILABLE FOR EXPENDITURE DURING FISCAL YEAR 1962-1963		\$ 384,908.51

SCHEDULE NO. I—A truly realistic picture is presented in this schedule. While the Cash on Hand is \$136,017.66 less than it was at the close of the previous fiscal year, the amount may still seem large unless we analyze the obligations against the cash on hand.

Vouchers Payable represents invoices submitted to the Auditor General and State Treasurer for payment prior to June 30, 1962, but which had not been paid by the State Treasurer at that date.

Encumbrances represent commitments in the form of purchase requests, purchase orders and other contracts; in some cases they represent estimates covering the purchase of materials and supplies, land acquisitions, rentals, utility expenses, services and accrued payrolls which had not reached the expenditure stage but which were directly related to the fiscal year June 1, 1961 to June 30, 1962.

Reserve for Working Capital has been explained above.

Net Balance Available for Expenditure in the amount

of \$384,908.51 represents the difference between the cash balance in the Treasury and all required reserves. This amount is added to the estimated receipts for the 1962-1963 fiscal year and becomes a part of the total amount on which the budget for the 1962-1963 fiscal year is predicated. Again, when budgeting for the current fiscal year, allowance must be made to maintain a sufficient cash balance at the end of the year in order to establish similar reserves.

Before considering the individual schedules, it should be noted that the fiscal year which ended on June 30, 1962, was a thirteen-month year. This situation came about because the Commonwealth of Pennsylvania changed its fiscal year to conform with the Federal fiscal year.

In the past, the Commonwealth conducted its fiscal affairs on a biennial basis, beginning on June 1 and ending on May 31 of odd numbered years. However, beginning on June 1, 1961, fiscal affairs are now being conducted on an annual basis. It was necessary, therefore, to include the month of June, 1962, in the first

fiscal year so that future fiscal years would be twelve-month years, coinciding with the Federal fiscal year.

These facts are brought out for the benefit of anyone who may attempt to make comparisons with other fiscal years. Such comparisons should not be made without considering several other pertinent factors.

Cash on Hand is slightly less than it was at the close of the previous fiscal year. This is not the result of overspending but of "planned" spending. Vouchers Payable and Encumbrances at the close of the 1961-1962 fiscal year were considerably less than they were at the close of the previous fiscal year, so that the net balance available for expenditure during the current fiscal year is materially more than it was a year ago.

Changes in the Commonwealth's fiscal year and in the Fishing License year have brought about a change in the amount of available cash required to carry on normal operations during the months when revenues to the Fish Fund are normally at a low ebb. This is referred to as the Reserve for Working Capital. This reserve has been determined to be \$800,000 instead of the \$600,000 reserve formerly indicated—a \$200,000 increase.

Revenues to the Fish Fund total approximately \$1,000,000 during the first nine months of the fiscal year, July 1 through the following March 31. The bulk of the revenue to the Fish Fund, approximately \$1,500,000, is received during the last three months of the fiscal year, April, May and June.

Total expenditures from the Fish Fund average approximately \$200,000 a month, so that approximately \$1,800,000 is required to carry on all normal operations during the first nine months of the fiscal year. Since the revenues for the first nine months of the fiscal year are approximately \$1,000,000, it is patently obvious that a cash reserve of \$800,000 is required to meet all of the necessary obligations.

Having considered the above factors, we are now in a better position to study the schedules individually.

SCHEDULE NO. II—This schedule shows that the cash balance in the State Treasury at the beginning of the fiscal year, June 1, 1961, was \$1,470,730.50, from which Vouchers Payable of \$96,280.15, at that date, have been deducted, leaving a balance of \$1,374,450.35 available for expenditure.

During the fiscal year, this amount was increased by revenues amounting to \$2,795,603.81, resulting in a total of \$4,170,053.16 being available during the year. From these funds, \$2,640,577.15 was expended by the Fish Commission and \$203,225.60 was expended by other State Departments.

These expenditures included the liquidation of encumbrances applying to the prior fiscal year, as presented in the Commission's Financial Review published in the November 1961 issue, amounting to \$697,632.17. Expenditures by other State Departments included \$72,976.92 by the Miscellaneous License Section of the

Department of Revenue for printing and issuing licenses and for collecting license fees. The sum of \$90,297 was expended by the Department of State as the Fish Commission's share of contributions to the State Employees' Retirement System and \$39,951.68 was expended by the Department of Labor and Industry as the Fish Commission's share of Social Security for its employees.

The total expenditures (See Footnote "a") of \$2,843,802.75 as recorded by the Comptroller's Office, includes vouchers in the amount of \$8,461.43 not yet paid by the State Treasurer as of June 30, 1962. This amount must therefore be added back to the cash balance, as recorded by the Comptroller's Office, in order to reconcile with the cash balance of \$1,334,712.84 as recorded by the State Treasurer. This cash balance is subject to the reserves shown in Schedule I, as explained in the remarks on that schedule.

SCHEDULE NO. III—This schedule shows the expenditures made by the Fish Commission in compliance with the Legislative mandate of Act No. 330, Session of 1957, P. L. 619. Receipts and expenditures are shown on a calendar year basis to conform with the 1961 fishing license sales.

Expenditures, by type, are classified by the nature of the activity to which they apply. The lower portion of the schedule indicates that compliance with the Legislative mandate for 1961 was exceeded by \$88,746.20. On a cumulative basis, since the effective date of the Act, the Legislative mandate has been exceeded by \$95,272.59.

CHARTS—Pie charts are included, to present in graphic form, the revenues received and expenditures made by the Commission during the fiscal period covered by this report.

The chart entitled "Sources of Revenue to the Fish Fund" indicates receipts from all sources of \$2,795,604. However, it must be remembered, as previously pointed out, that this figure represents revenue for a period of thirteen months and is therefore somewhat higher than the total revenue for a normal twelve-month period. For this very obvious reason, it would not serve much purpose to make further analyses or comparisons.

The chart entitled "How the Fisherman's Dollar Was Spent" requires no further analysis for the same reason. Comparisons with prior years will indicate a realignment of functional activities in the Fisheries Management and Research program, so that greater emphasis is being placed on the aspects of Fishery Management.

(a) The word "expenditure" as used here refers to amounts vouchered for payment and does not include commitments and encumbrances on the books as of June 30, 1962 but does include expenditures for encumbrances relating to prior fiscal periods.

SCHEDULE NO. II

 PENNSYLVANIA FISH COMMISSION
 STATEMENT OF REVENUE, EXPENDITURES AND CASH BALANCES
 FISCAL YEAR JUNE 1, 1961 TO JUNE 30, 1962

REVENUE

Cash in State Treasury to Credit of "Fish Fund" June 1, 1961		\$1,470,730.50
Less: Unpaid Vouchers in Fiscal Offices as of May 31, 1961		<u>-\$96,280.15</u>
Net Cash Available for Expenditure as of June 1, 1961		\$1,374,450.35
Receipts June 1, 1961, to June 20, 1962		
Resident Fishing Licenses		\$2,120,942.48
Nonresident Fishing Licenses		111,845.60
Nonresident Trout Stamps		4,733.20
Special Eel Licenses and Miscellaneous Permits and Fees		2,400.00
Motorboat Licenses		219,500.00
Tourist Fishing Licenses		40,272.75
Lake Erie Licenses		1,935.00
Commercial Hatchery Licenses		9,375.00
Fee Fishing Lake Licenses		8,460.00
Fish Law Fines		38,717.00
Motorboat Fines		6,384.25
Interest on Securities		5,752.55
Interest on Deposits		19,167.01
Sale of Unserviceable Property (Department of Property and Supplies)		149.11
Contributions for Restocking Streams		38,679.64
Contributions from Federal Government (Dingell-Johnson Act)		110,161.48
Sale of Publications		32,633.42
Rental of Fish Commission Property		6,690.00
Miscellaneous Revenue—Fish Commission		
Miscellaneous Revenue—Revenue Department		8,270.95
Refund of Expenditures—Not Credited to Allocations		
Sale of Vehicles (Department of Property and Supplies)		9,534.37
Total Receipts from All Sources		<u>2,795,603.81</u>
Total Funds Available During Year		\$4,170,054.16

CLASSIFICATION OF EXPENDITURES BY ORGANIZATIONAL UNITS

Classification of Expenditures	Executive and General Administration	Propagation	Fishery Management and Research	Law Enforcement	Conservation Education	Land and Waters Management	Engineering and Development	Commission Total
Salaries	\$114,620.95	\$ 692,880.05	\$161,117.79	\$334,323.39	\$ 40,480.10	\$ 59,554.90	\$ 80,267.95	\$1,483,245.13
Wages	4,879.29	37,976.45	6,104.55	5,861.82	—0—	21,482.53	19,726.84	96,031.48
Professional & Special Services	15,614.88	849.23	25,462.38	754.27	1,192.69	6,682.22	77.50	50,633.17
Printing	25,392.45	168.32	243.00	29.40	34,502.33	710.43	11.20	61,057.13
Postage & Freight	2,310.39	1,043.57	451.67	1,692.05	7,953.18	109.00	85.82	13,645.68
Communications, Utilities & Fuel	6,181.83	41,044.53	7,732.61	8,695.89	955.03	804.50	1,098.74	66,513.13
Membership Dues & Subscriptions	180.59	14.00	134.00	—0—	67.50	—0—	—0—	396.09
Travel	13,980.49	11,660.27	5,367.65	86,360.18	3,622.48	9,337.10	7,187.99	137,516.16
Insurance	1,243.08	8,882.09	2,243.56	3,544.13	454.94	1,282.54	1,283.18	18,933.52
Motorized Equipment	567.74	35,871.71	4,225.70	1,514.83	628.71	3,271.68	2,467.05	48,547.42
Supplies & Repairs								
Contracted Repairs & Maintenance Service	932.65	3,118.64	376.98	94.29	561.11	730.56	361.60	6,175.83
Rent of Real Estate	—0—	3,474.92	1,199.14	2,781.06	64.00	112.50	—0—	7,631.62
Rent of Equipment	504.85	532.08	63.37	—0—	—0—	147.00	12,807.29	14,054.59
Miscellaneous Materials & Supplies	4,062.57	36,064.89	7,869.54	3,705.95	3,075.75	12,242.94	75,980.74	143,002.38
Fish Food & Other Agricultural Supplies	—0—	258,385.55	1,378.46	—0—	—0—	—0—	—0—	259,764.01
Motor Vehicles	3,758.52	25,564.13	10,505.70	—0—	—0—	1,876.56	6,211.98	47,916.89
Equipment, Machinery & Furniture	1,536.64	9,197.72	810.60	343.60	480.91	4,260.33	2,416.85	19,046.65
Land & Waters	—0—	—0—	—0—	—0—	—0—	129,506.94	—0—	129,506.94
Buildings & Structures	—0—	2,934.59	—0—	—0—	—0—	—0—	8,802.44	11,737.03
Non-Structural Improvements	—0—	—0—	—0—	—0—	—0—	—0—	25,166.79	25,166.79
Refund of Receipts	55.51	—0—	—0—	—0—	—0—	—0—	—0—	55.51
TOTAL EXPENDITURES BY FISH COMMISSION	\$195,822.43	\$1,169,662.74	\$235,286.70	\$449,700.86	\$ 91,028.73	\$252,111.73	\$243,953.96	\$2,640,577.15

Plus: Expenditures by Other State Departments (*)

Department of Revenue		72,976.92
Department of State		90,297.00
Treasury Department		—0—
Department of Labor and Industry		39,951.68

TOTAL EXPENDITURES \$-2,843,802.75

Cash Balance June 30, 1962, Available for Expenditure in the 1962-1963 Fiscal Year		\$ 1,326,251.41
Plus: Unpaid Vouchers in Fiscal Offices as of June 30, 1962		8,461.43
Cash Balance in State Treasury to Credit of "Fish Fund" June 30, 1962		<u>\$ 1,334,712.84</u>

(*) These items are paid out of the "Fish Fund" upon requisitions drawn by the other departments and are included for a complete presentation of the "Fish Fund" finances.

AUDIT OF THE FUND

Under the provisions of Article IV, Section 402 of the Fiscal Code, the Auditor General is required to audit the accounts and affairs of all State Departments, Boards and Commissions at least once each year. The last formal audit of the Commission covered the fiscal year ended May 31, 1961.

The formal audit of the Fish Commission for the fiscal year ended June 30, 1962, has not been completed but the accounts and records are in good order and no problems are anticipated. Built-in controls, an integral part of the Commonwealth's modern accounting system, provide this assurance.

Additional safeguards and controls imposed upon all Departments, Boards and Commissions are:

1. The mandatory requirement that all invoices, payrolls and other operating expenses must be audited by the Auditor General and State Treasury Departments before payment.
2. The mandatory reporting daily, of all financial transactions to the Governor's Bureau of Accounts and Controls.
3. The control exercised by the Governor's Budget Secretary over all requests for budget allotments and all other budget matters.
4. The periodic verification of Departmental Accounts with those maintained by the Auditor General's Department, the State Treasury and the Governor's Bureau of Accounts and Controls.

SCHEDULE NO. III

EXPENDITURES IN COMPLIANCE WITH ACT NO. 330—SESSION OF 1957

Act No. 330, Session of 1957, P. L. 619, amends the Act of May 2, 1925, P. L. 448. This Act became effective September 1, 1957, and provides that the sum of One Dollar (\$1.00) from each resident and nonresident fishing license fee shall be used exclusively for (I) the acquisition, leasing, development, management and maintenance of public fishing waters and of areas for providing access to fishing waters and the carrying out of lake and stream reclamation and improvement; (II) the rebuilding of torn-out dams; and (III) the study of problems related to better fishing.

For the Calendar Year 1961—January 1, 1961 to December 31, 1961

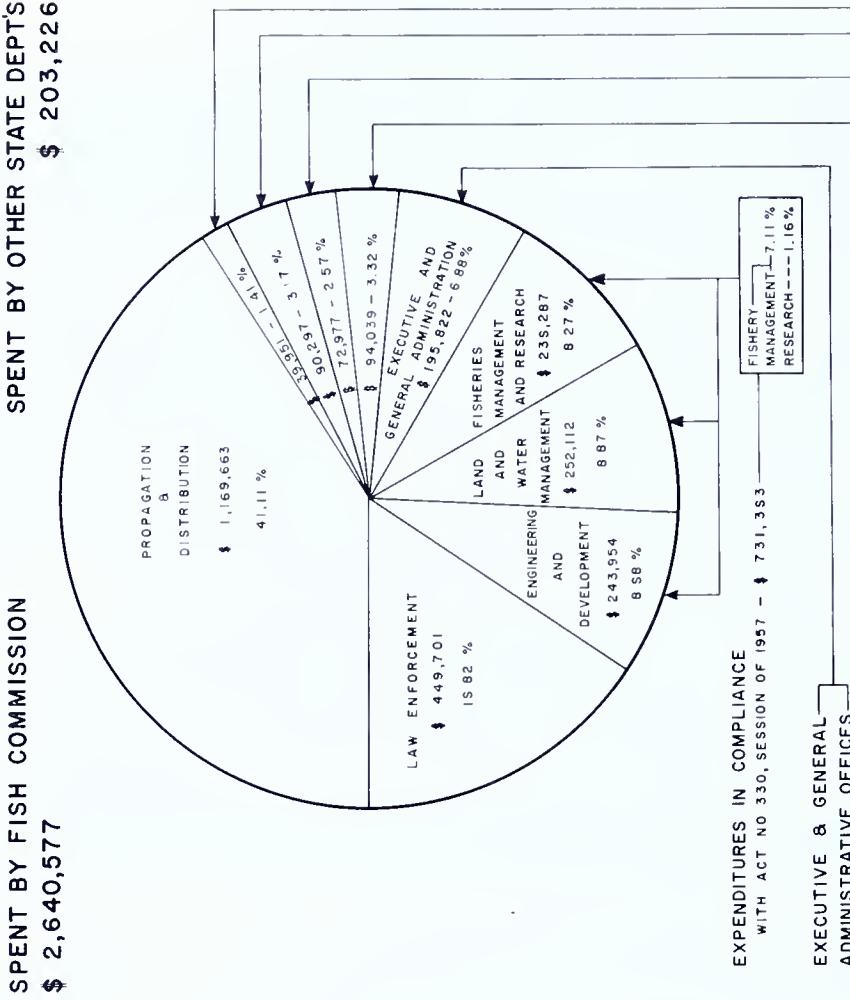
	Fishery Management and Fish Management Research	Reclamation of Lakes and Improvement of Streams	Acquisition of Lands and Fishing Waters	Management and Maintenance of Lands and Fishing Waters	Development of Lands and Fishing Waters	Totals
SALARIES AND WAGES	\$155,177.96	\$ 29,535.51	\$ 11,684.14	\$ 58,435.90	\$ 77,810.09	\$332,643.60
Salaries	144,093.20	25,308.00	11,292.00	36,060.30	58,079.95	274,833.45
Wages	11,084.76	4,227.51	392.14	22,375.60	19,730.14	57,810.15
OTHER OPERATING EXPENSES	50,792.35	11,402.65	10,150.53	20,964.22	98,490.17	191,799.92
Professional and Special Services	19,988.52	22.17	2,745.70	38.67	63.06	22,858.12
Printing	656.24	—0—	.68	1,227.36	15.58	1,899.86
Postage and Freight	610.04	—0—	—0—	78.00	—0—	688.04
Communications, Utilities and Fuel	7,573.49	—0—	60.25	589.05	1,056.39	9,279.18
Membership Dues and Subscriptions	120.00	—0—	—0—	—0—	—0—	120.00
Travel	4,505.30	3,645.04	1,877.82	6,336.34	5,578.35	21,942.85
Insurance	2,300.63	251.47	156.46	815.04	1,115.58	4,639.18
Motorized Equipment Supplies and Repairs	4,319.11	499.34	402.81	3,285.07	2,752.02	11,258.35
Contracted Repairs and Maintenance Services	1,178.90	165.43	—0—	970.33	201.52	2,516.18
Rent of Real Estate	2,005.81	—0—	—0—	79.58	—0—	2,085.39
Rent of Equipment	1,080.00	—0—	—0—	162.00	12,773.52	14,015.52
Miscellaneous Materials and Supplies	6,247.46	6,819.20	4,906.81	7,201.76	74,920.31	100,095.54
Fish Food and Other Agricultural Supplies	206.85	—0—	—0—	—0—	—0—	206.85
Other Services and Supplies	—0—	—0—	—0—	181.02	13.84	194.86
EQUIPMENT	12,636.30	227.07	2,020.43	12,963.20	8,096.72	35,943.72
Motor Vehicles	10,505.70	—0—	1,876.56	7,870.96	6,211.98	26,465.20
Equipment, Machinery and Furniture	2,130.60	227.07	143.87	5,092.24	1,884.74	9,478.52
OUTLAY FOR LANDS, STRUCTURES AND IMPROVEMENTS	—0—	—0—	93,765.83	—0—	21,417.13	115,182.96
Land	—0—	—0—	93,765.83	—0—	—0—	93,765.83
Buildings and Structures	—0—	—0—	—0—	—0—	7,236.40	7,236.40
Non-Structural Improvements	—0—	—0—	—0—	—0—	14,180.73	14,180.73
TOTALS	\$218,606.61	\$ 41,165.23	\$117,620.93	\$ 92,363.32	\$205,814.11	\$675,570.20

STATEMENT OF RECEIPTS AND EXPENDITURES—ACT NO. 330—SESSION OF 1957

Calendar Year	Resident Licenses Sold	Nonresident Licenses Sold	Minimum To Be Expended	Expenditures	Over (*) or Under (-) Minimum	Cumulative Over (*) or Under (-)
1957 (9-1 to 12-31)	4,444	165	\$ 4,609.00	\$142,467.00	\$137,858.00*	\$137,858.00*
1958	621,692	16,294	637,986.00	452,715.09	185,270.91—	47,412.91—
1959	603,546	16,438	619,984.00	524,014.33	95,969.67—	143,382.58—
1960	587,687	13,107	600,794.00	750,702.97	149,908.97*	6,526.39*
1961	573,628	13,196	586,824.00	675,570.20	88,746.20*	95,272.59*

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION
SOURCES OF REVENUE TO THE FISH FUND
RECEIPTS FOR THE FISCAL YEAR JUNE 1, 1961 TO JUNE 30, 1962
TOTAL \$ 2,795,604

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION
HOW THE FISHERMAN'S DOLLAR WAS SPENT
EXPENDITURES FOR THE FISCAL YEAR JUNE 1, 1961 TO JUNE 30, 1962
TOTAL \$ 2,843,803



CONTRIBUTIONS FROM FEDERAL GOVERNMENT, DINGELL-JOHNSON ACT

Category	Amount (\$)	Percentage
FINES	\$ 5,753	.22%
INTEREST ON SECURITIES	\$ 19,167	.66%
INTEREST ON DEPOSITS	\$ 6,690	.24%
RENTAL OF FISH COMMISSION PROPERTY	\$ 14,9	.01%
SALE OF UNSERVICEABLE PROPERTY (P & S)	\$ 38,680	.138%
CONTRIBUTIONS FOR RESTOCKING STREAMS	\$ 32,633	.117%
SALE OF PUBLICATIONS	\$ 9,534	.34%
SALE OF VEHICLES (P & S)	\$ 8,271	.29%

MISCELLANEOUS LICENSES

Category	Amount (\$)	Percentage
SPECIAL EEL LICENSES & MISC. PERMITS	\$ 2,400	.08%
LAKE EEL LICENSES	\$ 1,935	.07%
COMMERCIAL HATCHERY LICENSES	\$ 9,375	.34%
FE FISHING LAKE LICENSES	\$ 8,460	.30%
TOURIST FISHING LICENSES	\$ 40,273	.145%

NON-RESIDENT LICENSES

Category	Amount (\$)	Percentage
NON-RESIDENT FISHING LICENSES	\$ 111,846	.400%
NON-RESIDENT TROUT STAMPS	\$ 4,733	.17%

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION
EXpenditures for the FISCAL YEAR JUNE 1, 1961 TO JUNE 30, 1962

Category	Amount (\$)	Percentage
EXpenditures in COMPLIANCE	\$ 731,353	25.77%
Contributions to STATE EMPLOYEES' RETIREMENT FUND	\$ 62,847	2.21%
DEPARTMENT OF REVENUE - PRINTING AND ISSUING FISHING AND MOTOR BOAT LICENSES	\$ 35,246	1.24%
GENERAL ADMINISTRATION	\$ 46,525	1.69%
SERVICE DIVISION	\$ 37,675	1.32%
AUDITOR GENERALS AUDIT COSTS	\$ 13,529	.47%
CONSERVATION EDUCATION DIVISION	\$ 13,529	.47%
DEPARTMENT OF STATE - CONTRIBUTIONS TO STATE EMPLOYEES' RETIREMENT FUND	\$ 13,529	.47%
DEPARTMENT OF LABOR & INDUSTRY - EMPLOYER'S SHARE OF SOCIAL SECURITY TAXES	\$ 13,529	.47%

Fish Commission Sets 1963 Fishing Regulations

Approves Fishways Resolution At October 1, 1962, Meeting

Fishing regulations for 1963 were set during the October 1, 1962, meeting of the Pennsylvania Fish Commission held at Harrisburg.

Few changes were made in the existing regulations. Most important of these was the one permitting the taking of three (3) trout per day (combined species) through the ice of lakes of ten acres or more in size. This season is to begin when ice covers the lakes and ends January 31, 1963.

The Commission also voted to open Lake Erie to year around bass fishing. Eels were added to the list of species which may be taken in inland waters by archery and spearing. Other species listed in this group are carp, gar and suckers.

In other action the Commission removed the bag limit on snapping turtles. The group also continued a minimum length limit of 20 inches on northern pike in the Conowingo and Youghiogheny Reservoirs.

Size, season and creel limits on the inland waters for 1963 are as follows:

TROUT (brook, brown and rainbow)—5:00 a.m., April 13 to midnight, September 2, in lakes 10 acres and over through October 31; minimum size—6 inches; daily limit—8, combined species. Three through ice only through January 31, 1963.

LAKE TROUT—5:00 a.m., April 13 to midnight, October 31; no minimum size; daily limit—8. Three through ice only through January 31, 1963.

BASS (largemouth and smallmouth)—January 1 to midnight, March 14 and June 15 to midnight, March 14, 1964; minimum size—9 inches; daily limit—6, combined species.

PICKEREL AND WALLEYE—January 1 to midnight, March 14 and May 11 to midnight March 14, 1964; minimum size—15 inches; daily limit—6 each species, except two walleye only through the ice.

MUSKELLUNGE—January 1 to midnight, March 14 and May 11 to midnight, March 14, 1964; minimum size—30 inches; daily limit—2.

NORTHERN PIKE—January 1 to midnight, March 14 and May 11 to midnight, March 14, 1964; minimum size—20 inches; daily limit—6.

PAN FISH (sunfish, all species, yellow perch, crappies, rock bass, catfish, suckers, eels)—Open year around; no minimum size; daily limit—50 each, 50 combined species.

BAIT FISH AND FISH BAIT—Open year around; no minimum size; 50 each, 50 combined.

TADPOLES—no closed season; no daily limit.

FROGS—July 2 to October 31; no minimum size; daily limit—15. It is unlawful to take frogs by the use of an artificial light.

TURTLES—No closed season; no minimum size; daily limit—10. No daily limit on snapping turtles.

ARCHERY AND SPEARING—Carp, suckers, eels and gar may be taken with a long bow and arrow or a spear.

Rules and regulations for the DELAWARE RIVER, between Pennsylvania, New Jersey and New York are as follows:

BASS (largemouth and smallmouth)—Open year around; minimum size—9 inches; daily limit—6, combined species.

TROUT (all species)—April 15 to September 30; minimum size—10 inches; daily limit—5, combined species.

WALLEYE AND PICKEREL—Open year around; no minimum size; daily limit—6 each species.

STRIPED BASS—March 1 to December 31; minimum size—12 inches; no daily limit.

BAIT FISH AND FISH BAIT—Open year around; no minimum size; daily limit—35 each.

Size, season and creel limits for Lake Erie (Presque Isle Bay and peninsular waters) are as follows:

RAINBOW TROUT—April 13 to October 31; minimum size—6 inches; daily limit—8.

BASS (largemouth and smallmouth)—No closed season; minimum size—9 inches; daily limit—6, combined species.

PIKE (northern)—Open year around; minimum size—20 inches; daily limit—6.

MUSKELLUNGE—Open year around; minimum size—30 inches; daily limit—2.

Size, season and creel limits on PYMATUNING LAKE for 1963 are as follows:

MUSKELLUNGE—Open year around; no minimum size; daily limit—2; possession limit—4.

BASS (largemouth and smallmouth)—Open year around; no minimum size; daily limit—10, combined species; possession limit—20.

WALLEYE—Open year around; no minimum size; daily limit—10; possession limit—20.



Fishways Resolution Approved

Members of the Pennsylvania Fish Commission recently approved a resolution recommending that the U. S. Department of the Interior and the Federal Power Commission require the owners of Conowingo Dam to construct a fishway at that dam.

The approval of the resolution followed a month-long study of the engineering and biological report submitted August 29 by Milo C. Bell, consulting engineer, and Harlan B. Holmes, consulting biologist, according to Albert M. Day, executive director of the Fish Commission.

"The survey team, after more than two years of intensive study, said construction of the fishway is feasible and the plans and estimated construction costs also were provided by Bell and Holmes," said Day.

The resolution follows:

WHEREAS, the dams below Harrisburg, Pennsylvania, in the Susquehanna River bar the migration of shad, eels, and other commercial, game and food fish from ascending the Susquehanna River basin in Maryland, Pennsylvania, and New York to spawn as they had done for thousands of years, and

WHEREAS, a study for the Pennsylvania Fish Commission by Bell and Holmes indicates that fishways over the dams in the Susquehanna River to restore the annual migration of fish from the Atlantic Ocean is feasible and practical, and

WHEREAS, the first dam barring migratory fish into the Susquehanna River basin is Conowingo Dam in Maryland,

NOW, THEREFORE, BE IT RESOLVED: that the Pennsylvania Fish Commission requests the Department of Interior of the United States of America to ask the Federal Power Commission to require the owners of said dam to erect and to construct a fishway at Conowingo Dam, in accordance with the provisions in the license for said dam (Project No. 405, Article 13) and in accordance with the provisions of Federal Act of June 4, 1956, paragraph 2, 70 Stat. 226 (16 U. S. C. 811) which contemplates such action, and further that the proper state agencies of the states of New York and Maryland be requested to join in said Resolution and that this Resolution shall be communicated to the Federal Power Commission and to the owners of Conowingo Dam.

Special Fly-Fishing Regulations—1963

The following regulations are uniform and apply to any waters set up as fly-fishing streams. Fishermen must be guided accordingly.

1. Fishing may be done only with artificial flies and streamers of construction materials limited to feathers, fur, hair, tinsel or fiber, except that bodies of flies or streamers may be of plastic, cork or rubber. Weight or sinkers up to the equivalent of 2BB shot may be built into the fly or streamer or affixed to the leader. Other lures commonly described as spinners, spoons or plugs made of metal, wood, plastic or rubber, singly or in combination, are prohibited.
2. Fishing may be done only with conventional fly-fishing tackle. Any method of angling whereby the fly or streamer is cast directly from the reel is prohibited.
3. Possession of any bait or lures other than artificial flies and streamers is prohibited.
4. Fishing hours: 5:00 a.m. to 9:00 p.m., E.S.T.
5. Minimum Size: Nine (9) inches, caught on or in possession on the waters under regulations.
6. Daily Creel Limit: Six (6) trout—combined species, caught on or in possession on the waters under regulations.

National Wildlife Scholarships Available

The National Wildlife Federation is offering scholarships and fellowships in Resource Management, Conservation Education, Journalism, Radio and Television, Landowner-Sportsman Relations and related programs. The graduate student scholarships are up to \$1,000 and \$500 to undergraduates who have completed at least one year of college. Applications must be postmarked on or before December 1, 1962. For application blanks write the Executive Director, National Wildlife Federation, 1412 Sixteenth Street, N.W., Washington 6, D. C.

New Clean Streams Booklet Available

"PEOPLE and water . . . WATER and people" . . . is the report of the Pennsylvania Department of Health, issued in booklet form and available from its offices at Harrisburg without cost. The report covers a wide range of information of water sources and uses in Pennsylvania including the varied need facets—personal—industrial and recreational. Acid mine drainage is traced through the streams of the state pointing up the seriousness of the problem and efforts now being made to solve it.

Fly-Fishing Areas—1963

Name of Stream	County	Mileage	Location of Fly-Fishing Area
Coves Creek	Bedford	.1 mile	Downstream from Shaffer Dam on Percy Smith property to the boundary of the Sam Deal and James Shoemaker properties.
Potter Creek	Bedford	1.4 miles	From a concrete bridge on the property line of Ulery and Steele downstream to the vicinity of Twp. Rt. No. 594.
Yellow Creek	Bedford	1 mile	From mouth of Maple (Jacks) Run upstream to Red Bank Hill.
First Fork, Sinnemahoning Creek	Cameron	2 miles	From Rattlesnake Run to Potter County line.
Mud Run	Carbon	2.6 miles	In state forest area.
Trout Run	Clearfield	4 miles	From L. R. 17126 near Shawville to Ireland's Forty.
Young Woman's Creek (Left Branch)	Clinton	4 miles	From State Forest boundary to mouth of Green Lick Run.
Young Woman's Creek (Right Branch)	Clinton	6 miles	From confluence with the Left Branch to and including the pool under Moo Hollow Bridge.
Green Spring	Cumberland	2 miles	The posted area of Green Spring Creek upstream from its mouth.
Clarks Creek	Dauphin	2 miles	From mouth upstream to Route 225.
Mill Creek	Elk	1 mile	From Nagle Bridge to headwaters of Norton Reservoir Dam.
Dunbar Creek and tributaries	Fayette	14 miles	From stone quarry to headwaters including tributaries.
Falling Springs Creek	Franklin	2.25 miles	From the concrete bridge between the Adin L. Frey and Earl Stull property downstream to a wire fence crossing the Robert E. Gabler farm.
Little Mahoning Creek	Indiana	4 miles	From the bridge at Rochester Mills upstream to Cesna Run.
Little Lehigh	Lehigh	1 mile	From Laudenslager's Mill Dam upstream to Twp. Road No. 508.
Slate Run	Lycoming Tioga	6.5 miles .5 mile	Lycoming County, Brown Township; Tioga County, Elk Township.
Loyalsock Creek	Lycoming	3 miles	From Lycoming County line downstream to Sandy Bottom.
Penns Creek	Mifflin Union	1.4 miles	From 300 ft. below Raymond Winter Cabins, Mifflin County, to the upper property line of A. T. Soper, including that portion of Cherry Run lying south of L. R. 59001.
Big Bushkill Creek	Monroe	6 miles	On the Burns property, except 200 yards each side of the Boy Scout Camp.
Cross Fork Creek	Potter	3.5 miles	From the Campbell Bridge upstream to Hungry Hollow.
Lyman Run	Potter	4 miles	Above state park lake.
Clear Shade Creek	Somerset	1 mile	Upstream from cable located across stream 250 ft. below Windber Water Dam (including dam).
Francis Branch, tributary to Slate Run	Tioga	2 miles	Elk Township, from mouth upstream to Francis Leetenia Road.
North Sandy Creek	Venango	2.5 miles	From L. R. 60073 in the Borough of Polk, upstream to bridge at the pump station of the Polk State School.
Caldwell Creek	Warren	1.5 miles	From the highway bridge at Selkirk to the highway bridge at Dotyville.
Dyberry Creek	Wayne	1 mile	From the Widmer property line about one mile below Tanner's Falls downstream to Mary Wilcox Bridge.
Bowmans Creek	Wyoming	2 miles	Dolls Bridge to Marsh Creek Bridge.
Muddy Creek	York	2 miles	From Bruce to Bridgeton.

FISH FOR FUN ONLY

Regulations on this area are the same as for special fly-fishing streams except:

1. NO TROUT MAY BE KILLED OR HAD IN POSSESSION.
2. Open to fishing the year around.
3. Fishing hours—One-half hour before sunrise to one-half hour after sunset, or when siren blows.
4. No wading permitted.

Name of Water	County	Mileage	Location of Fish for Fun Area
Fisherman's Paradise (Spring Creek)	Centre	.6 mile	Lower boundary of Spring Creek Hatchery grounds to the upper boundary of the Paradise.

COMMISSION RELEASES 110,000 TROUT

Move Due to High Feeding Costs, Lack of Funds

The high cost of over-winter feeding of trout and the necessity for increased reduction in operating costs of the Pennsylvania Fish Commission due to decreased revenues have made necessary the immediate release to public fishing waters of 110,000 two-year-old brown and brook trout, according to Albert M. Day, executive director of the Commission.

"Lack of sufficient funds to meet constantly increasing operational costs has forced the Fish Commission to remove these trout from the hatchery ponds to lakes of ten acres or more which are open to public fishing through October 31, 1962," said Day.

Day emphasized the fact that removing the trout from Commission hatcheries at this time is strictly an economy move. He explained that the feed which would have been required to maintain these fish over the winter must be used for the rearing of trout being prepared for release next spring.

Fish Commission biologists have advised that the winter carry-over capacity of the lakes where the trout are to be released is very high.

The lakes, ranging in size from 18 to 5,700 acres, where the trout will be released are located in 23 counties of the Commonwealth. They are as follows: Chambersburg Water Company Reservoir, Waynesboro Water Company Reservoir, Adams County; North Park Lake, Allegheny County; Koon Lake, Bedford County; Scotts Run Lake, Berks County; Levittown Lake, Bucks County; Parker Dam, Clearfield County; Laurel Lake, Cumberland County; Lake Pleasant, Erie County; Virgin Run Lake, Fayette County; Letterkenny Ordnance Depot Reservoir, Franklin County; Cowan's Gap Dam, Fulton County; Whipple Dam, Huntingdon County; Chapman and Crystal Lakes, Lackawanna County; Lights Dam, Lebanon County; Harveys, Silkworth and North Lakes, Luzerne County; Highland Lake, Little Pine Dam, Lycoming County; Fairview Lake, Lake Wallenpaupack, Pike County; Lyman Run Dam, Potter County; Laurel Hill Creek Lake, Somerset County; Chapman Dam, Warren County; Canonsburg and Dutch Fork Lakes, Washington County; Lake Lorain, Furie's Long Pond, Wayne County; Keystone Lake, Westmoreland County.

Recreation can be the key that unlocks the door to self-discovery, to respect for self, to the joy of sharing mutual interests and experiences with others. It can also be the key that opens the door to respect for worth and dignity of others. Recreation crosses barriers of language and cultural differences. It is not confined by space or locality. Recreation is universal.
—Lillian Summers.

Fish Commission Seeks New Sources of Revenue

The Pennsylvania Fish Commission, in response to a request from the Joint State Government Commission, took action to recommend possible steps to be taken to bolster the decreasing revenue of the Fish Commission.

"Fishing license revenues have gradually declined during the past several years until the Commission's program faces drastic reductions. During the current fiscal year expenditures were reduced by more than \$400,000 and we still face further cuts. Trout are now being liberated into our larger lakes because we cannot afford to carry them over. We may be forced to further drastic economies in the near future," said Albert M. Day, executive director of the Commission.

"Vacant warden districts are remaining vacant and neighboring wardens are extending their coverage. Old equipment grows older and repairs to our capital outlay plant cannot be made."

The only alternative to a further deteriorated situation, according to Day, is to find new sources of revenue.

Day listed the suggestions to be made to the Legislature as follows: An increase in general license fee, with the exact amount to be decided upon by the Legislature; contributions from the General Fund for capital improvements such as rehabilitation of existing hatcheries and the construction of new facilities; financing of General State Authority approved projects by General Funds, and, the charging of special fees for public use of Commission lakes similar to those now charged by the Department of Forests and Waters.

Other potential means of producing revenue for the Fish Commission included earmarking of a portion of harness racing revenues for conservation programs, and conversion of marine fuel taxes to the Fish Commission to more adequately finance its expenses in connection with boating and fishing, also convert sales tax on fishing tackle to fish fund.

Day said the Commission also will request the Legislature to consider revisions in the existing boating law so that Pennsylvania may conform with the Federal Boating Act. Outstanding change needed for such conformation is to establish a reciprocity agreement as to licensing, thus making it possible for nonresidents to use their boats for 90 days before needing to purchase local licenses.



ONE HUNDRED AND SIXTEEN YEARS of total service to the Pennsylvania Fish Commission is here represented by retired District Fish Wardens: Horace Pyle, 26 years; Charles V. Long, 30 years; Tony Lech, 32 years; and George James, 28 years. The meeting of the **BIG FOUR** took place at an outing held in Tony Lech's honor at Barney Barnhart's near Elizabethville recently. Retiring Tony was the recipient of many gifts and the best wishes of friends and commission personnel in attendance.

STREAM NOTES

District Warden Leland Cloos (Tioga) reports he contacted men, some 80 years of age and over, who have lived all their lives in this locality and who never saw the streams as low as this year; many springs have run dry. It is believed raccoon are taking a heavy toll of trout. Eldred Frost, Wellsboro, saw nine coon crossing the road near his home one late August morning.

#

During August, while on patrol of Big Pine Creek (Lycoming), **Warden Supervisor John Buck**, **Special Fish Warden S. C. Merlochi** and **District Warden Lee F. Shortess** (Lycoming) were driving behind a truck and noticed a long fish line trailing from it. At first it was thought the truck driver was trolling for "road fish" but when the line became entangled in the officers' car, off came a minnow trap. The trap was new but had openings in excess of one inch. The officers then tried to catch up with the truck but it had disappeared. The owner may have this trap back with an explanation as to why the openings were in excess of legal limits!

#

District Warden Bryce Carnell (Franklin and Fulton), while working the Fulton County Fair with the Fish Commission's Live Fish Display, overheard two small girls as they watched the fish: the older girl exclaimed to her sister . . . "Look, they all have babies!" This was hardly true for we had just put live minnows in the tanks for food. Then a boy, looking at the hellbender, yelled . . . "Hey, Mom, come quick, look at the sea horse!"

District Warden Richard Owens (Huntingdon and Mifflin) declares a few large muskies have taken over one of the deeper holes in the Raystown Branch and creating a bit of a riffle among local anglers. On a bright day these fish can easily be seen from the road, often creating quite a traffic jam. **Regional Warden Supervisor Harold Corbin** is seriously thinking of erecting a sign on the road which reads . . . "SLOW DOWN . . . MUSKIES ON DISPLAY."

#

There was an increase in the number of pleasure boaters on the Schuylkill River this summer according to reports of **Special Wardens White, Rich** and **Lauderback** ably assisting **District Warden Walter Burkhardt** (Montgomery and Philadelphia).

#

Ed Conrad, sports writer for the Levittown Times and Bristol Courier, reported the incident of an angler fishing in the Neshaminy Creek near Hulmerville (Bucks) who tangled with a two-headed perch! The angler showed the odd-ball fish all over lower Bucks County, then decided to have it mounted. Next day he was back at the old stand along the Neshaminy trying for another one.—**District Warden Miles D. Witt** (Northampton and Bucks).

#

Fishermen hereabouts and elsewhere, are prone to discuss various colors and patterns of their favorite lures. Recently, Ed Troy, of Sandy Lake, had his family out for a picnic at the lake. His young son found a bit of leader and a bare hook discarded by some fisherman, went to a dock and dangled it in the water. To everyone's surprise he hooked and landed a 22-inch largemouth bass. Lures? . . . plugs? . . . spoons? . . . who needs 'em?—**District Warden Richard Abplanalp** (Mercer-Lawrence).

#

District Warden Frederick W. Ohlson (Carbon) reports Bear Creek Reservoir, a Federal flood control project on the Lehigh River, is stocked fairly heavily by the U. S. Fish and Wildlife Service with rainbow trout, both fingerling and adult as well as with fingerling bass. It further provides variety as demonstrated by Edward Wojciechowski, Ashley, Pa. In two visits this summer, twelve weeks apart, the Ashley angler took three pickerel from the reservoir, 32, 28, and 24 inches along with bass and trout.

#

District Warden Lester C. Ogden (Clearfield) was intrigued by this clipping from the back files of the Lock Haven Express: "70 Years Ago—1892—E. J. Israel and S. Z. Martin returned from a day's fishing in the Sinnemahoning Creek near Keating. They brought home 16 salmon that averaged two pounds each."

#

Many clubs have done extensive stream improvement work on streams of the Northcentral Region. Sportsmen's groups and private clubs and individuals have given a big assist to low streams during the drought.—**Regional Warden Supervisor, John Buck**.

#

ICE FISHING for perch in Presque Isle Bay, Lake Erie, looks good for the coming season if the fine catch of perch made this summer is any barometer. Commercial fishermen at Lake Erie are also doing very well with fish bringing only 4½¢ per pound but there are many of them and nice size, from 9 to 11 inches.

DON'T MISS—

HOLIDAY GIFT SPECIAL

—IN THIS ISSUE

No Shopping! No Wrapping! No Mailing!

THE EASIEST — MOST APPRECIATED

Christmas Gift

YOU'LL EVER SEND, IN ONE BIG PACKAGE ATTRACTIVELY GIFT WRAPPED WITH A WARM, HOLIDAY GIFT CARD ENCLOSED FROM YOU TO A RELATIVE—FRIEND OR ANGLING BUDDY



\$2 — Two Dollars ONLY Wraps it up — \$2
IN THIS
Yuletide Package

of materials to be used in planning next year's fishing trips

- (1)—12 ISSUES of the PENNSYLVANIA ANGLER — a one-year subscription — 12 ISSUES
Sample copy enclosed—subscription starts with January 1963 issue
- (2)—PENNSYLVANIA WATERS-HIGHWAY MAP
- (3)—COPY of the new booklet—"FISHING AND BOATING IN PENNSYLVANIA"
An Angler's and Boater's handy reference to state-wide fishing waters, muskellunge areas, boating access areas, fly-fishing and fish-for-fun areas, fish identifications plus maps and a ready index.
- (4)—FULL COLOR booklet describing Pennsylvania's vacation and travel opportunities.

You Fill Out Order Form on Page 24 Opposite . . . We'll Send Gift Package Promptly



PENNSYLVANIA STATE LIBRARY
GENERAL LIBRARY DIVISION
PERIODICAL ROOM



Pennsylvania Angler



Holiday Greetings

*from the
Pennsylvania Fish Commission*

Christmas comes once again to the world. There is no land without Christmas, even where it must be celebrated secretly. Each country has its own legends and customs. But in all we find the Christmas greens.

THE pagans decorated their homes with greenery to celebrate the winter solstice and the coming of spring. Later the Christians adopted them as a symbol of everlasting life. Whether palm leaves or fir boughs, they are a universal Christmas symbol.

HOLLY, mistletoe and the yule log are traditional Christmas decorations. Mistletoe was cut by the Druids with a golden sickle and given to the Saxons with a kiss. From that pagan custom comes our Christmas kiss under the mistletoe.

THE yule log originated in Sweden and was adopted by England and the southern United States. It was kept burning till Twelfth Night, the anniversary of the visit of the Wise Men to the manger, when all greens are burned.

THE coming weeks will be filled with the wrapping of gifts, Christmas cards, parties, the fragrance of baking fruit cakes. But back of all the festivity lies the true spirit of Christmas . . . the heralding of the birthday of the Christ Child.



**PENNSYLVANIA
FISH COMMISSION
DIRECTORY**

EXECUTIVE OFFICE

ALBERT M. DAY
Executive Director

DR. ALBERT S. HAZZARD
Asst. Director

WARREN W. SINGER
Assistant to Executive Director

PAUL F. O'BRIEN
Administrative Officer

PAUL J. SAUER
Comptroller



DIVISIONS

Aquatic Biology

GORDON TREMBLEY Chief
Fish Culture

HOWARD L. FOX Superintendent

Real Estate and Engineering

CYRIL G. REGAN Chief
EDWARD MILLER Asst. Chief

Law Enforcement

WILLIAM W. BRITTON Chief
Conservation Education-Public Relations

RUSSELL S. ORR Chief



NORTHWEST REGION

S. CARLYLE SHELDON Warden Supervisor
1212 E. Main St., Conneautville, Pa.,
Phone: 3033

SOUTHWEST REGION

MINTER C. JONES Warden Supervisor
R. D. 2, Somerset, Pa. Phone: 6913

NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor
Box 64, Honesdale, Pa. Phone: 253-3724

TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

JOHN S. OGDEN Warden Supervisor
1130 Ruxton Rd., York, Pa. Phone: 2-3474

ROBERT BIELO Fishery Manager
Holtwood, Pa.,
Phone: Rawlinsville Butler 4-4128

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 5, Lock Haven, Pa.,
Phone: 748-7162

DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

Pennsylvania Angler

Published Monthly by the

PENNSYLVANIA FISH COMMISSION
COMMONWEALTH OF PENNSYLVANIA

David L. Lawrence, Governor



PENNSYLVANIA FISH COMMISSION

MAYNARD BOGART, President Danville

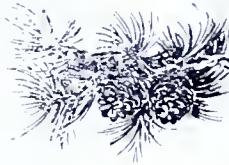
JOSEPH M. CRITCHFIELD, Vice President Confluence

GERARD J. ADAMS Hawley ALBERT R. HINKLE, JR. Clearfield

WALLACE C. DEAN Meadville R. STANLEY SMITH Waynesburg

JOHN W. GRENOBLE Carlisle RAYMOND M. WILLIAMS East Bangor

DECEMBER, 1962



VOL. 31, NO. 12

GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

Contents

2—*Fishing When Pennsylvania Was Young*—William Boyd

6—*Yuletide Thoughts of Trout Fishing*—Tom Cofield

9—*Wonders in Wood*—Don Shiner

10—*Make Way for Youth in Conservation*—Howard Bullock

12—*Tunkhannock Canoe Races*—photo story by Johnny Nicklas

14—*Boating*

18—*Stream Notes*

19—*Club Notes*

20—*The Water Dowser*—Albert G. Shimmel

20—*Tackle Tips*

21—*Outdoor Books*

22—*The Universal Ant*—Chauncy K. Lively

23—*The Feminine View*—Marion Lively

23—*Youth Outdoors*—Owen Penfield Fox



*Holiday cover by Bob Cypher
Inside cover Yuletide sketch from "Quote"*

Back cover photograph of Black Moshannon Creek

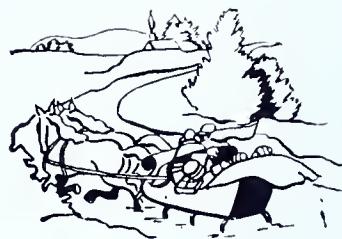
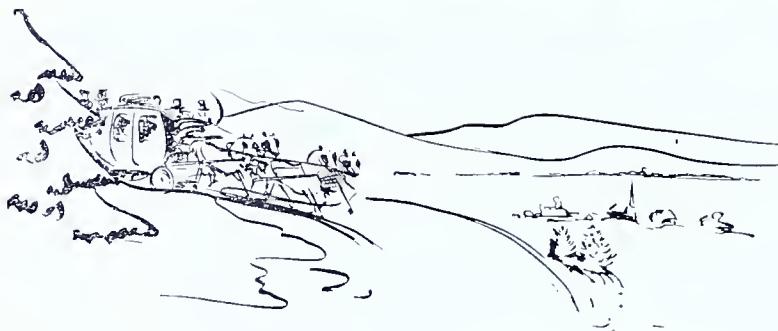
By Johnny Nicklas—Chief Photographer

Pennsylvania Fish Commission

**POSTMASTER: All 3579 forms to be returned to Times and News Publishing Co.,
Gettysburg, Pa.**

The PENNSYLVANIA ANGLER is published monthly by the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa. Subscription: One year—\$2.00; three years \$5.00; 25 cents per single copy. Send check or money order payable to Pennsylvania Fish Commission. DO NOT SEND STAMPS. Individuals sending cash do so at their own risk. Change of address should reach us promptly. Furnish both old and new addresses. *Second Class Postage paid at Harrisburg, Pa., and at additional mailing offices.*

Neither Publisher nor Editor will assume responsibility for unsolicited manuscripts or illustrations while in their possession or in transit. Permission to reprint will be given provided we receive marked copies and credit is given material or illustrations. Communications pertaining to manuscripts, material or illustrations should be addressed to the Pennsylvania Fish Commission, Harrisburg, Pa. *NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.*



Fishing . . .

When Pennsylvania Was Young

By WILLIAM BOYD

PENNSYLVANIA anglers occasionally express regret they did not have the opportunity to fish state streams in pioneer days, when there was no fishing pressure and nature had its own way with fish. They may learn what fishing conditions were in the early years of the region, which is now Pennsylvania, from a rare book published by Philip Tome, who lived in the Pine Creek area after his birth in 1782 in Dauphin County.

"Thirty Years a Hunter," written by the pioneer who for 15 years was an interpreter for Cornplanter and Gov. Blacksneak, Indian chiefs of the Allegheny River region, was printed in 1854 when Tome could vividly recall the exciting days of his youth.

Reference to fishing in those early times are many in Tome's book, very few copies available today.

The famous pioneer sportsman's first comment on fish and fishing of his period is in connection with a description of a deer hunting expedition in which a canoe was used to pursue the deer being sought as a source of badly needed food.

He tells how the canoe was allowed to float with the current, and a steersman would guide it to a position advantageous for men with guns in the bow. A fire of yellow pitch pine held high above the canoe would cause deer along the stream to stand still while they raised their heads to peer at the fire.

The hunters could tell by their movements whether

they would make a break or stand still until they approached close to them, and they would fire or hold according to the movements of the deer.

Often when the deer attempted to run out of the water where the embankment was steep they could see their own shadows and, thinking it a dog or wolf, would spring back into the water, come near enough to the canoe for an easy shot. Multiple kills were possible.

Homeward bound, the pioneers would gather up the dead deer they had left along the stream then fish for eels, salmon, and other fish abundant in the stream. Canoes were capable of carrying from 2,000 to 4,000 pounds; fish could be added to a cargo of perhaps ten deer.

With a five-tined spear, they would take from 20 to 60 eels and a large quantity of salmon. When they reached home in the morning they would have fish and venison sufficient to supply an ordinary family for two months.

On one occasion when young Tome was on an elk-hunting expedition with his father a stop was made while the elder Tome repaired his moccasins. The boy, instructed to keep a sharp lookout for elk, stationed himself among the roots of a big tree at the edge of a stream.

Though the stream was small he could see some fine large trout in it. Philip slipped down to the stream, unseen by his father, moved upstream a short distance,

proceeded to dam up the water so he could throw out stranded trout. An old log and quantities of moss provided material for a dam which left the stream course below it virtually bare of water.

Young Tome then found little trouble in throwing out some 30 fine trout. His father, spying this act, laughingly asked if this was the way he watched the lick for elk, but seemed pleased his son had secured such a nice mess of trout.

The boy, stringing his fish after his father left, heard a stone rattling down an incline about a hundred yards below him. When he faced the direction of the disturbance he was alarmed to see a big panther staring at him. He quickly sprang up the embankment and hurried to where his father was still busy repairing his moccasin.

Telling the boy to remain quiet, Tome made the dog lie down with him within an opening between some roots. He stuck his gun through them, awaited the panther's approach. When it came within three rods of them, it paused, forefeet upon the edge of the stream embankment, bared a formidable array of glistening teeth.

Tome fired and the panther fell back lifeless. The ball passed through its open mouth, had broken a vertebra of the neck, severing the spinal cord. They cut it open and left it there, the largest panther Tome said he had ever seen before or since, and he had seen some 30. They supposed it to weigh between 200 and 300 pounds.

On another elk-hunting expedition the Tomes, father, son, and a neighbor named Morrison visited the headwaters of Kettle Creek, Cedar Run, and Sinnemahoning Creek.

Tome describes this region as abounding in elk, deer, and bear. They knew, too, these streams were virtually alive with fish; they had taken with them hooks and lines. Rods were ready made by cutting long, straight limbs from pliable saplings.

Young Tome and Morrison descended Kettle Creek about seven miles and found on the east side of the creek in the side of the mountain a large elk lick to which Tome gave the name "Rock Lick."

Meanwhile the pair had no trouble whatever catching what they described as "a mess of trout that would have pleased the palate of an epicure, had it not lacked salt." During the entire time they hunted elk here the hunters dined on trout they caught in very short order previous to mealtime.

Philip Tome and his companion had a harrowing experience on one trout-fishing side trip. Ascending a gully among rugged and broken rock until they were within 30 feet of the bottom, they encountered a precipice down the face of which they crawled by placing fingers and toes in crevices.

Finally they came to a ledge about 15 feet from the bottom. On the brow grew a beech sapling and near it an ironwood about 15 feet high, with limbs nearly to

the ground. They decided to cut down the ironwood, trim off the limbs, leaving a hook at the large end they could attach to the beech to form a hanging ladder.

Tome started down first and as he was about to set foot on the ledge his companion saw a large rattlesnake coiled exactly where the boy would set foot. He shouted a warning and Tome hung suspended until he learned what it was all about and could tell his friend to throw the ax at the snake.

Fortunately the man's aim was true and the snake slithered off badly injured. But a new calamity awaited Tome. A swarm of yellow jackets, resenting the intrusion, came at him stinging him in face and chest.

Fish and venison, the Tomes say, were so abundant in the vicinity where they lived it was hard to understand why both were scarce at the mouth of Pine Creek, only 26 miles distant. The Tome family used both as articles of trade and exchanged them with people at the mouth of the creek for wheat, rye, corn, buckwheat, salt, leather, and other necessities.

Frequently the pioneers would combine hunting and fishing. If conditions were favorable they would catch from 60 to 100 eels and a quantity of salmon, pike, and rock fish in a single night, fishing while going up a stream, hunting on the way down.

After the first of October, the method of taking fish was to make an oblique wall in the creek, letting it extend at the upper end about 20 feet, and come together at the lower end just near enough to admit the fish basket, which was made of lath and timber.

Situated in the center of the stream, Tome said, the fish for the most part would pass down between the





walls and enter the basket. They generally built the wall where there was a slight rapid, leaving a fall of about 18 inches at the basket, into which the fish would pass, and could not escape.

Tome says that the first season his father constructed a basket, he took pattern from neighbors downstream. But there came a rise of water about the last of October, and they caught few fish that year. The next season the elder Tome determined to put in a basket that would prove efficient whether the water was high or low.

The pioneer commenced building the fish basket in June, intending to be in season. He constructed it differently from any he had seen, making one wall shorter and at a sharper angle with the bank than the other, thus bringing his basket nearer the shore on which he lived, more easily accessible. He left the lower ends of the wall about ten feet apart, enabling him to put in a large basket, and fastened the timbers so strongly under the wall that the basket stood seven years despite floods of every spring.

When winter came he let down the end of the basket, took off the sides, so that the ice could pass over it without doing damage. The next season, when he wanted to use it, he had only to raise the end and sides, fasten the corners, and it was ready.

At that time there were no boats or lumber rafts to pass down, only one family lived above the Tome home, eight miles distant, so he left only an opening large enough for hunters to pass through in their canoes.

The second night after the Tomes finished their new and improved fish basket, it was rainy, a condition under which eels played backward and forward over the riffles. In the morning they found seven or eight large eels, a like number of big salmon, a quantity of suckers and other small fish.

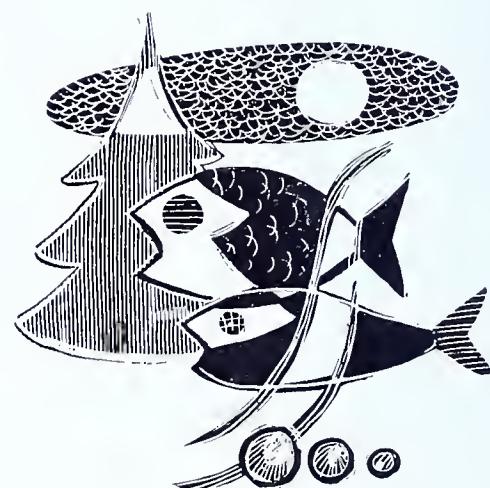
Tome found his basket to be very profitable from that time until the last of October. In fact, they were so abundantly supplied by their basket they fish-fed their hogs, especially good for fattening swine, other feed denied the closely confined animals.

About October 5 of that season there came a rise of water in Pine Creek. That night the Tomes caught about two barrels of eels and three wagonloads of suckers. They continued to take 20, 30, or 40 eels and a number of other fish nightly, until about November 10 when another rise of water in the creek brought them two barrels of large salmon and four wagonloads of suckers in three hours.

When darkness fell, the eels began to run. Tome, assisted by Philip, two other sons, and a neighbor were busy carrying out eels when other fish came into the basket so rapidly it jammed, the eels went over the sides until the crew could throw out fish to make room for the eels.

Losing so many eels from the overloaded basket, one of the Tome boys placed his canoe under the basket at a place where water did not reach and raked the eels into it as they passed by in thick schools. They made an opening in the basket, through which the eels fell until the stream rose so high as to overflow the basket and their fishing had to come to an end.

By that time they had carried out 12 wagonloads of suckers, three barrels of eels, and two barrels of salmon and rock fish, even though they had been compelled to throw a great quantity out of the basket to keep it from overflowing.



They built a tight house of slabs, into which they put their suckers, and threw over it a large quantity of pine and hemlock boughs to prevent freezing. They fattened their hogs for the next three weeks on fish and then commenced feeding them corn. In fact, they kept three hogs over winter on a fish diet alone.

The supply of fish lasted until about April. At that time eels were worth from \$5 to \$7 a barrel, according to the demand. The Tomes estimated the fish fed to their hogs to be worth no more than \$7 or \$8 as corn was very cheap at that time.

Salmon and other good fish brought from \$4 to \$6 a barrel.

Tome estimated the fish caught in his basket were worth to him, at the lowest rate, from \$60 to \$75, be-

sides those eaten by the family all during the period when catches were heavy. Trout caught that season, kept for family use, easily were worth \$20 more.

In the months of June and July, Tome says in his book, they could often see from 200 to 500 fish sunning themselves in the shoals. The wildcats would stand by watching them, and when they approached near enough to the shore, would lash out quickly with their sharp claws and drag in three fish each until the school became alarmed and swam to deeper water.

The black fox, Tome wrote, would dive in water two feet deep and bring out fish. The red and silver foxes, however, would not dive into the water but stand along the shore and take fish in the same manner as wildcats.

The pioneers did not bother to kill the foxes while they were foraging for fish because their pelts were not as valuable then as in the autumn and winter. However, they would shout and alarm them just to see them scurry away.

At the proper season, when their pelts were full and glistening, the Tomes would trap the animals. This usually was about the first of November. For the most part, fish were used as trap bait. Sometimes they would roast an eel and drag it through the snow for a distance, and the fur bearers would follow the scent. They found this to be a good method of luring animals with pelts desired as furs.

In October of 1832, in company with John Campbell, Marshall Whitcomb, and a Mr. Whitmore, Tome set out from Kinzua down the Allegheny in a canoe capable of holding three tons of game and fish. They took with them four dogs and a seine.

At the Big Bend, three miles below Kinzua, they took several barrels of fish of various kinds, among them salmon, muskellunge, and remarkably fine specimens of pike, as well as white and yellow bass. Then they proceeded to Glade Run, two miles above Warren, where they caught two barrels of fish and killed two deer.



At the village they caught another barrel of fish; two miles below, two more barrels of fish, among which were some immense muskellunge. Returning from the combined hunting and fishing trip, the party again used the seine, assisted by Daniel Jones and three of his sons. Here they had a haul so large it broke the seine. In the clear water they could see an immense number of fish not less, they judged, than 30 barrels.

Tome jumped in where the water was three feet deep and held one side of the seine, while Jones held the other, but in spite of all their efforts two-thirds of the fish escaped. They secured, however, about ten barrels. The seine was so badly torn it required three men nearly a day to repair it, after which nearly all fish in the water there seemed to disappear and they could net only 20 or 30.

Tome also tells in his book of seeing wolves fishing in the Susquehanna in the spring when they lived largely on rabbits, frogs, and fish. The river then abounded in a fish called the white sucker which lay in schools near the shore, sunning themselves. The wolves would come slyly to the water, seize the suckers, sometimes getting two or three apiece before the suckers swam off.

The man who wrote the exciting story about fishing in his pioneer times evidently was a sturdy man physically, for there is a legend that another husky individual set out to try conclusions with Tome but changed his mind when Philip lifted a barrel of cider and drank from the bunghole.

To this day, members of the Tome family live in the Pine Creek region. There is a settlement of sorts and a small run named Tomb's Run not far up Pine Creek from Jersey Shore toward Waterville.



To him there were two "visitations" in the history of the world, not one. The first can be found in the Holy Bible. The other one was Izaak Walton. Anyone looking to organize a new religious sect called "Waltonianism" can depend upon my brother-in-law being in the first pew every Sunday—except during trout season, that is.

Before I married into the family I was made aware that anyone who didn't trout fish was—well! And I didn't even know a nymph from a nymphomaniac.

Throwing myself at their feet in supplication, I confessed my sins of omission and begged to be taught the wonders of "trout angling." I had fished for nearly everything else that swims and in most parts of the country.

But, about "trout angling" I was a three-cylinder schnook. Fortunately I managed to make muster with the fly rod and that at least gave me one leg up. And so we were wed despite the fact that I had decidedly "uncompleat" leanings which upon occasion were known to cause gas pains in the "family."

Having safely negotiated the final knot-tying, I lost no time getting down to cases with said br'er-in-law over his thrice touted troutng techniques. I had a deep-seated desire to present him with a few facts of life, none of which had anything to do with Ike Walton and his dumb way of spelling "compleat." But I reckoned without family pride, determination that says: "None shall pass here but who is fitting!" So I learned

Yuletide Thoughts of Trout Fishing

By TOM COFIELD

A LONG time ago I had to face the unpleasant fact that trout fishing and I of the Izaak Walton variety were destined—like ships in the night—to pass each other without speaking.

It isn't that I don't catch trout. Truth is, I get my share along with other trout types. It's the abominable, abhorrent and completely disgusting methods I use to get them that has set me and others like me aside in little niches plainly marked, "socially unacceptable" in trout angling circles. And I use the latter term loosely.

I was taught trout fishing by my brother-in-law; a gent of rare expertise in angling and one who obviously was fed at an early age on gruel made of minced copies of the "Compleat Angler."

fly-fishing, all except the use of nymphs. And I still couldn't catch a cold with nymphs stark naked in the dead of winter with a snow storm going for me.

But don't get the idea that I'm one of those—horror of horrors—worm dunkers. Heavens to Betsy, no. I rarely use worms. Don't have to. Got lots of better bait.

Frankly, I got into this bait-fishing kick because I kept meeting up with men heavily laden with full creels of fish while my own swung lightly and gaily from my shoulder, unsullied by the heady odor of trout.

Every now and then I'd take a trout, but it was so long between drinks that all taint of fish left the creel during the 'tween-times. Soon, flies in my mind came to be synonymous with the kind that you kaput with

a spray gun. And for similar reasons. The dang things irritated me.

Naturally I began hanging around with the "wrong crowd." I had no choice, you see. Not being a devout compleat angler I didn't swallow those tales about how hard trout fight.

Fight? Shucks, let's face it, in the world of sport fishing the hardest fighting trout ever spawned couldn't make gravy for a snook, or a tarpon, or a largemouth bass, or a small smallmouth bass. Or, for that matter, a big sunfish. Stocked trout, that is. The other variety admittedly has a heap of moxey.

Even harder to swallow with any degree of calm were the sad glances leveled in my direction upon those occasions when I was invited to attend meetings composed of "anglers"; compleat anglers.

The March brown whosits, the sparse grey hackles, the gin clear water, the sparkling sun dappling on the mountain brook—Ugh!

That sacred sun dappling that gor-blamed mountain brook blinded me most of the time and that gin clear water was cold enough to freeze a bottle of bay rum. The rest of the guff was par for the course. Pure conversation.

Frequently, when the martinis were sweating nicely on the rich mahogany bar, some overly-loquacious "compleat" type tried to warm the cockles of my frigid heart by regaling me with tales of his daring-do.

Politely, I waited until he had finished, or ran down, and then I'd ask what size tippet he was using. No matter what he answered I offered the opinion that any stocked trout could be taken on a one-pound test tippet by any man with an ounce of skill in his fly rod wrist. A few such elder-compleats have been known to turn a rich purple before stalking rigidly away to seek more fertile fields.

I rapidly became the skeleton in my adopted family's closet. My wife loved me and agreed with me because she, too, never went for all that diamond-chips-on-the-water stuff.

So much for my unfortunate background. I became a confirmed deviate simply because, believe it or not, I love trout fishing—when it is stripped of all the malarkey.

Moreover, there are more off-beats like me than there are compleats, and we rabidly exchange workable ideas for taking trout by new and different methods.

Perhaps if fate had decreed the non-compleat methods unworkable my soul may have been saved. Just the opposite happened.

The first time I tried one of the bait-fishermen's schemes I sat on my duff, all warm and toasty in the sunshine, and took my limit of nice trout; nothing under 14 inches and the largest only 18½ inches. So who's fishing for records? I fish for trout.

This particular trout-trick has to do with buying a can of whole, cooked hominy. The use of whole hominy is highly complex and demanding of superior skill—you put a kernel of the stuff on a number-twelve or number-fourteen hook; short shanked, of course; then you lob

it slightly upstream from most any pool or slick. If the current is strong you add a piece of split-shot about eight inches up the leader so the hominy-ball will get right down in the swim with the trout. No use making the lazy beggars work too hard getting to your bait. Let Mohammed go to the mountain.

The stuff won't stay on the hook very long, but who cares? A whole can only costs something like 29 cents and you can eat what's left over.

For those really tough days when nothing seems to work, try dyeing each kernel of hominy with food coloring, either bright red or equally bright yellow. These you store in a small jar for emergency use. Otherwise it's too darn much trouble for run-of-the-mill days when the trout will take on anything.

One or two of our group go so far as to soak hominy-balls in garlic water or beef bouillon, with the food coloring added.

How does it work? It catches trout. Not being of a neat turn of mind we rarely keep records on which bait does what for whom.

Another way to use hominy is to "chum" with it, first, then drop in a kernel with a hook well hidden inside.

Why does whole hominy work so well? Probably because it resembles a grub worm. Feed trout a few rations and the mere fact that the stuff is edible will put them off guard for the next portion that drifts into their pool.

Even on streams reserved for the use of flies only, chumming with hominy is a good bet for finding fish by watching for them to flash at the easily seen hominy as it drifts into a pool. Having found the trout, you then can proceed to catch it by legal means; namely with a fly. Under such conditions an all white wet fly has been known to work rather well.

The dairy industry didn't know it, but when they invented cheese packaged in jars they put trout in the creels of many a fisherman, me included.

I stole this idea from a man who, by today's news headlines, would be called a "senior citizen"; except that this senior citizen wasn't in need of a pension. Money and time was about all he had—plus a strong yen for trout fried in butter with just a touch of garlic powder added.

I ran across the gent one day while covering an opening of trout season for the newspaper that pays my bread-and-beans tab.

A small footbridge had been laid across the stream and its position was more or less ideally suited for taking action pictures if anything was happening nearby. I was standing on the bridge, camera slung over



my shoulder, just wishing I was fishing instead of working when an elderly man ambled up to the bridge abutment. He was carrying a knapsack on one shoulder and a fly rod rigged for bait-fishing—long leader, split-shot and bare hook.

Opening the knapsack, he took out a jar of cheese of a well known brand. I thought he was going to make himself a cheese sandwich except he had neither crackers nor bread,

When he dug into the jar with one finger, I thought I had found the original "fingers-before-forks" addict.

Soon, though, he was rolling the bit of cheese into a ball and molding it firmly in place on the hook tied to his leader.

Having completed his complex baiting procedure he tossed the bait into the current and let it slip under the bridge into the cool shadows. I stood stock-still for fear of spooking any trout under my feet.

Looking up at me with a grin of thanks for not making any noise, he said:

"Cheese is better'n worms any day!"

About the third or fourth toss—he never casts—paid off in slightly more than 15 inches of brown trout, which around these parts is right smart of trout.

Although most any kind of "moldable" cheese will work, the noisier it is, nosewise, the better it will attract trout.

If strong sunshine softens it too much, simply let the jar lay in the stream until the cool water solidifies it again. Chunk cheese is just as good if it can be worked into balls and molded on a hook without crumbling to bits.

Everyone has a favorite bait or fly, I suppose, and mine is the "liver-minnow."

Liver-minnows are carved from beef or calves liver by slicing as thin as possible down through the liver rather than with the flat of it.

Once such thin slices have been made, they should be cut into lengths not more than three inches and not less than two inches. The real wide center cuts can be sliced in half for width, the ideal width being about one-half inch.

Next cut one end sort of round, or even slightly pointed like a fish's head, and the other end into a fish-tail shape.

I confess these fancy shaping cuts probably don't amount to more than dressing for the fisherman's benefit, but it does add a little glamour to be using something you really made to do a job. Liver-minnows are hooked only on the head-end, just as would a live minnow be hooked.

They are fished like a streamer; that is, downstream, or across-current allowing them to swim downstream.

Other good spots for this bait are undercut banks and logs or rocks where big trout will tend to hide.

Small trout will snap off the liver nine times out of ten without touching the hook itself. Larger trout will slurp in the whole rig without even burping.

Here is one even the most compleat anglers may admit has the makings of merit: dyed cotton balls.

The name is self explanatory. Pluck off a few bits of raw cotton from a package of the type that can be bought in any drugstore, and roll them into balls. Experiment until the right amount of cotton produces the right size balls to neatly cover small trout hooks; short shanked.

After the balling process, soak the cotton in food coloring or regular Tintex dye. Reds, pinks, yellows and even greens are all good for a try although the reds take all preference.

After dyeing, lay each cotton ball on a paper towel until thoroughly dry, then store in a fly-box until the day when nothing else seems to work. Fish them just like hominy or salmon eggs, or worms.

The only fair guideline to use in this kooky trout-trapping racket is to ask yourself: "Is it offbeat?" If the answer is yes, such a bait probably will take trout.

Perhaps it is true, as Ike Walton explained, that the trout is a dignified "fishe" worthy of dignified angling methods. But Ike was writing about native trout.

Stocked hatchery trout are about as snobbish as a big old Mississippi catfish. If they escape the pressure of opening day fishing and survive a few weeks after, most hatchery trout will wise up to the delicacies being offered by the insect life in the streams—if there's enough around to satisfy their hunger.

The trouble is, in some streams where stocking is needed to provide fishing, there isn't enough food available to hold trout. If there was enough food there'd be no need for stocking since it is well known that hook and line fishing is a tough way to deplete fish populations, even in small ponds.

Because about 75 per cent of the trout fishing in this country today is wholly or partly dependent upon extensive trout hatcheries and upon stocking programs costing several fortunes annually, the basic character of trout fishing in general can be said to be slightly unscrewed by "Compleat Angler" standards.

More important, wherever trout stocking is necessary to keep the sport alive and flourishing, these gold-plated blennies are put in the streams for one purpose only—to be caught by fishermen. By and large, if they are not caught they die, or move downstream in an attempt to keep fin-and-skin together by finding enough food upon which to exist.

Native trout streams are another subject entirely. Where such gems exist they should be guarded, cherished, even enshrined; for all too soon the exploding population will assuredly engulf them otherwise.

Admittedly the few native streams left should be set aside for fly-rollers, Lord bless their peculiar hides. But all other streams should be for us "uncompleat" types as well as for the purists.

The main point is, why get all red in the face and puffy around the eyes trying to make hatchery trout act like anything but what they are.

Why not just catch them any way that suits best, eat them cooked as taste dictates—and thank God you live in a country rich enough to provide such kingly fare. . . .

Wonders in Wood

Photos by Don Shiner



WOODEN HOG . . . ever see one? Well, it looks like one though it's only a funny log found on the shore of Huntington Creek, near Huntington Mills, Pa.

UNKEN HEAD? . . . maybe a skull of g or squirrel? No, . . . it's a knob of a of a sycamore tree. The root, prob-hindered in growth by rocks, enlarged this odd ball. It was found floating in hen's Creek, a fine trout stream nearerson's Grove, Luzerne County.



NAME IT! . . . deer or donkey (non-political)? Piece of firewood found in camping area of Ricketts Glen State Park, Sullivan County.



DEER WITH A NICE RACK? . . . nope, only a piece of driftwood picked up on the shore of Lake Jean, Luzerne County.



ELEPHANT HEAD? . . . guess it can be with a little imagination. Odd shaped piece of oak tree was found washed ashore on the North Branch of the Susquehanna River near Nescopeck, Luzerne County.

Make Way for Youth in Conservation

Canton, Pa., Explorer Scouts Build a Trout Nursery

By HOWARD BULLOCK

College of Architecture
Cornell University



Photos by Mrs. Leon J. Keagle

THE first day of National Wildlife Week last year, a group of teen-age boys from Canton, Pa., members of Explorer Post No. 3, B.S.A., assembled on the steps of the state capitol building in Harrisburg and received the William T. Hornaday award for outstanding service in the field of wildlife conservation from M. J. Golden, executive director of the Pennsylvania Game Commission.

The award, made available through the courtesy of the New York Zoological Society, the nation's highest honor of its kind, was presented to the group in recognition of five years of continuous effort to improve wildlife habitat in their area and for maintaining an important winter game feeding program.

Now—there was a feeling of another spring in the air, a constant urge to skip school and just sit around in the chilly sunshine. Scouting trout streams, looking for lunkers, became a daily occurrence. When one of the group suggested they build a trout nursery the idea just came naturally.

With typical "boy optimism" they went for the idea, voted unanimously to carry out the project and put out feelers to locate a suitable nursery site.

One very good reason these boys have been successful in their conservation efforts is linked to the fact they have always received sound advice and co-operation from their staff of advisors—the Canton Rod and Gun Club and their sponsors the Canton Lodge, Loyal Order of Moose. With sound adult help and advice it wasn't long before a site for the proposed trout nursery was located.

The Canton Borough Water Authority recently completed a new, highly efficient filtration system and an existing auxiliary reservoir, nearly one hundred years old, had been abandoned. This reservoir and approximately twelve acres of land located close to town on Mill Creek was leased to the Explorers and the Canton Rod and Gun Club for 99 years for one dollar. The project was now ready to roll.

The reservoir, unused for ten years, was full of an accumulation of debris and junk. Many a drag-line or bulldozer operator would figure the task of cleaning up an estimated 200 tons of muddy, sticky, cruddy debris impractical. But the Explorers went ahead with picks and shovels, with their bare hands and did the job oblivious they were doing the impossible.

The boys first figured it would take three or four

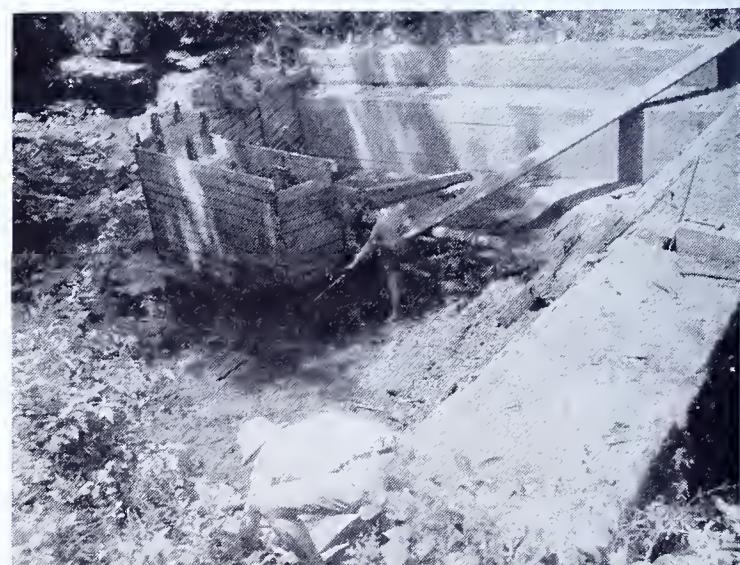
weeks to clean the reservoir. Shortly after starting the job they changed this estimate to three or four months.

The debris measured an almost uniform eight feet depth throughout the pond composed of a conglomeration of branches, logs, roots, stones, boards, boulders, oil drums, old rubber boots, automobile tires and odd and curious hardware items all plastered together with a semi-solidified blue clay mud sticky with leaves and weeds in every stage of decomposition.

After about four months of backstraining, heart-breaking labor the reservoir was finally cleaned. What



RESERVOIR DAM AND WATER MAIN relocated to the trout nursery tanks.



RUGGED old reservoir dam and cribbing.

had previously been a dirty, smelly gunked-up eyesore was now a beautiful pool of fresh, pure mountain stream and spring water, more than an adequate water source for the tanks that were to house the fingerling trout.

Approximately 50 feet below the reservoir dam and far enough away from the stream to avoid flooding during the annual spring runoff of snow water, the boys planned to construct four masonry holding tanks each measuring twenty-five feet long by four feet wide and approximately thirty inches deep. An old abandoned ten-inch water main was to be cleaned and relocated from the pond to the holding tanks . . . a kind of aquatic umbilical cord.

There were only two items missing in the overall plan . . . adult help with a lot of carpentry and masonry know-how and an estimated \$800 to purchase the necessary construction materials.

An appeal to area sportsmen soon solved these problems. A bulldozer owner prepared the excavation for the tank foundations. Carpenters instructed and supervised the building of forms and the pouring of the con-

crete floors for the tanks. Masons appeared to lay up the limestone block sidewalls. Interested individuals came up with cash donations. The Canton Rod and Gun Club sponsored a well-attended sportsmen's field day aimed at further financing the operation.

Several hundred loads of gravel later (they used the stuff for backfill), the project was completed and a turn of the valve in a small building, the boys had converted into a water control plant, soon had the tanks full and the water circulating nicely.

The next step was to notify the Fish Commission to please come and inspect the project.

The Pennsylvania Fish Commission had already been notified when the project was started, explaining what we intended to do. The Commission asked to be alerted when the tanks were completed and they would then send personnel to check the project and make further recommendations.

To say that we "sweat out" the results of the inspection would be the understatement of the century. For many months we had worked evenings and weekends when we could have been whipping a trout stream to a froth with a dry fly. So far, all we had to show for our efforts were missed meals, strained backs, muck-ruined clothes, busted tools and callused hands.

It was a cold day in November when Merrill Lillie, superintendent of the Corry and Union City hatcheries of the Fish Commission, and Willard Persun, District Fish Warden, came to Canton to inspect the nursery. Pleasantly impressed with the thought, planning and labor that had gone into the project, Mr. Lillie declared the nursery was one of the finest of its kind.

The boys, originally seeking to raise approximately 10,000 trout annually in their tanks, were delighted when Mr. Lillie upped this figure to 16,000. The trout nursery was, at last, a reality!

Some time after the inspection team had visited our nursery and given it their stamp of approval I was sitting in the water control shanty visiting with the Explorers. They were discussing things important to boys like cookouts, muskrat skinning, bob-sledding, the past small game season, basketball, how to tell a male porcupine, night fishing, etc. I wasn't taking an active part in the discussion. As Conservation Counselor to the group I was merely relaxing and plenty happy the long, rough grind of work that had gone into our trout nursery was finally and successfully completed. At this point one of the young brutes suggested that our next project should be to establish a bird sanctuary.

Looking back I realize that right then was the time I should have belted him, walked out and found an easier avocation like skidding logs or quarrying stone or skinning mules. Instead, we started a preliminary discussion of the proposed project and you know something! . . . it will take a lot of time, effort, sweat and money but I'm willing to bet that eventually these kids will wind up with a bird sanctuary that will be an ornithologist's dream.



CANTON EXPLORER SCOUTS working on clean-up project of reservoir, for years, filled with all sorts of rubbish and debris.



VETERAN ANGLERS abandoned their rods temporarily to pitch in with picks and shovels.

Thrills . . . Spills at Tunkhannock Canoe Races

—Photos by Johnny Nicklas, Chief Photographer, Pennsylvania Fish Commission

Largest crowd ever to turn out for a single sports event in Wyoming County lined banks and bridges of the Susquehanna River to see the first Olympic development canoe races from Myo Beach through Meshoppen and Mehoopany to Tunkhannock. The races, held Sunday, October 14, were run in perfect autumn weather but on a high, murky river swollen by recent rains.

Former Olympic canoeists, Frank Haven and Deborah Smith, Arlington, Va., completed the 16-mile trip downriver in two hours, two seconds to take the mixed tandem, double blade awards. Ken Wesselman and Eugene Van Derpool, Towanda, Pa., won the tandem single blade races for 16-year-olds and under. Tricky river currents capsized several craft and one team had to be rescued near the finish line by Fish Commission Wardens patrolling the river areas during the races. Competition attracted canoeists from local and far-off Pennsylvania points and many racing veterans from other states.



RACERS LEAVE MYO BEACH to group at starting line.



AND AWAY THEY GO . . . on the 16-mile grind down river.



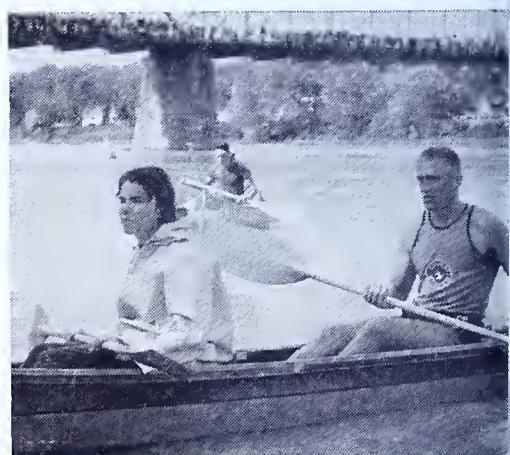
PADDLIN' MADELINE down the river, contestants found river currents tricky.



TEEN-AGERS take to the paddles.

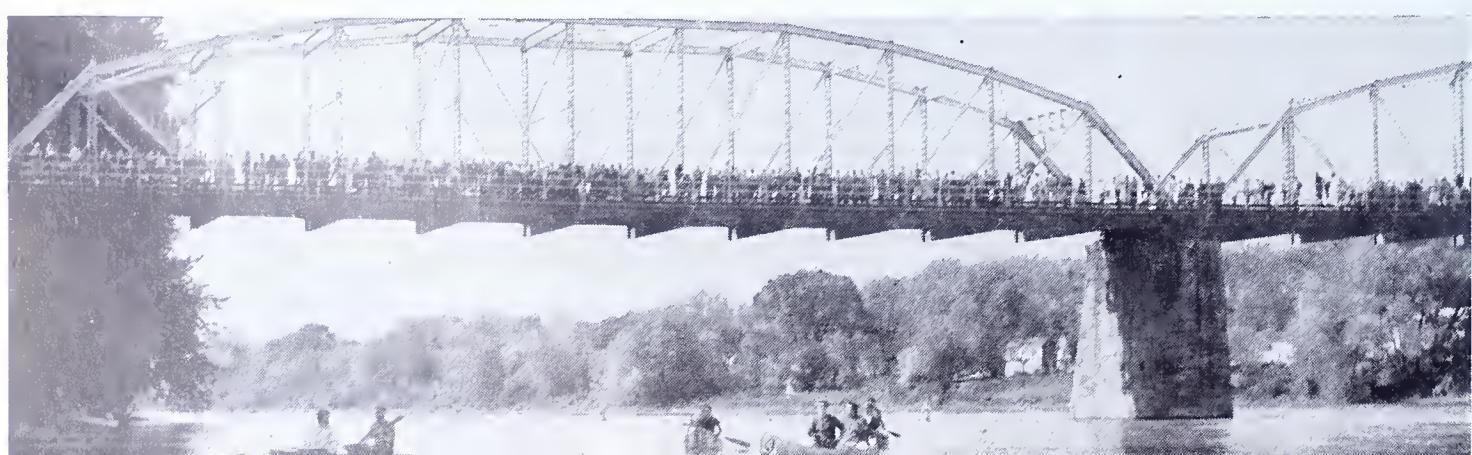


SPECTATORS line banks and bridges all along the Susquehanna route. Lineup here is on Mehoopany bridge.



RESTING after crossing finish line at Tunkhannock bridge this couple seem glad it's over.

FINISH LINE at Tunkhannock bridge. These rail birds on the bridge were among thousands enjoying the races.





RACE OFFICIALS—(left to right): J. V. Hazard, American Canoe Association, Washington, D. C., was timer; Myron Shoemaker, president of the Endless Mountains Association, sponsors of the event; D. Rhoades, vice commodore, Middle Atlantic States Division, American Canoe Association, Washington, D. C.; Bob Stevens, chairman of the Tunkhannock races; and Ernest Millar, U. S. Olympic Development Committee, Washington, D. C.



AIR BOAT PATROL of race areas made by District Fish Wardens Harland F. Reynolds and Stephen A. Shabbick.



MAN OVERBOARD! These canoeists, Larry Pk and Bill Tunis, Horseheads, N. Y., overruled in the tricky currents under Tunkhannock bridge at finish line. Fish Commission patrol boat is on way to pick them up.



RESCUE TEAM of District Fish Wardens Walter G. Luzusky and James F. Yoder picked up foundering racers.



THE CHAMPS—Deborah Smith and Frank Havens, Arlington, Va., canoeists and former national and Olympic competitors who finished first in tandem and single blades mixed. Both are members of the famed Washington, D. C., Canoe Club.



ACTION AND FORM that paid off for the winners.

SALVAGE OPERATIONS were carried out by rescue teams—Wardens Lazusky and Yoder. Partially sunken canoe is towed to shore.





NOW IS THE TIME TO ...

PREPARE OUTBOARD FOR SPRING

First of all, remember that outboard motors used in salt water should be run for a short period in fresh water before storing them for the winter. A cloth dampened in fresh water will remove salt deposits from the exterior parts of the engine.

The best and easiest way to prepare your outboard for winter storage is to squirt several drops of rust-preventive oil into the carburetor the last time you use it this season. This should be done while the motor is on the boat and idling. Disconnect the fuel line and when the engine starts to run rough and sounds like it is going to quit, inject the oil. Keep squirting until the engine stops. This will protect the internal parts of the motor.

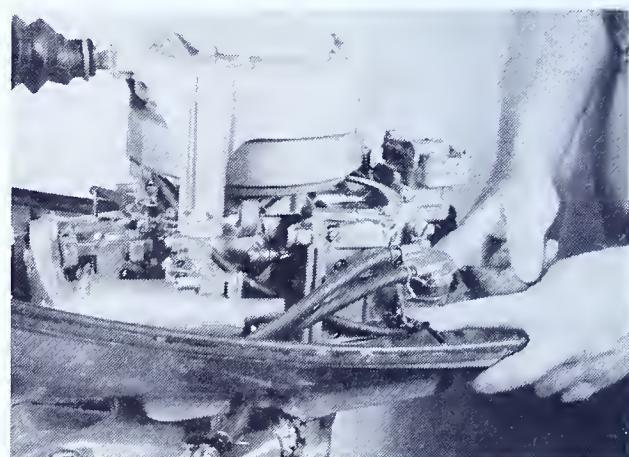
If you forget or don't have a chance to do this, the following procedure is recommended. Remove the spark plugs and leave them out until you have finished working on the motor. Then squirt in several drops of good rust-preventive oil through the spark plug openings. Rotate the flywheel by pulling the starter rope several times to distribute the protective oil evenly over the cylinder walls and pistons. This will also remove any water that might be present in the water pump.

Regardless of which method you use to lubricate the internal parts of the engine, these additional steps should be followed. If you ran the carburetor dry the last time you used your motor, most of the fuel has been drained from the fuel system. Fuel remaining in the filter bowl should be emptied by removing the bowl. Clean the bowl and filter element thoroughly in benzine or gasoline before reassembling. Also check to make sure the filter element is not obstructed.

Fuel tanks should be emptied before they are stored. Fuel stored for long periods loses its ability to ignite and burn properly and can cause hard starting if used. There is also the possibility of gum deposits forming in a partially filled tank. After emptying the tank it's a good idea to check and clean the filter. To get at the



FIRST, REMOVE THE SPARK PLUGS and leave them out until you have finished working on the engine. Squirt several drops of rust preventive oil into the spark plug openings and, at the same time, rotate the flywheel to distribute the oil evenly over the cylinder walls and pistons.



IF YOU REMEMBERED TO DISCONNECT the fuel line and run the engine unit until it quit the last time you used it, most of the fuel has been drained from the fuel system. But before storing, remove the filter bowl and empty it. Clean the bowl and filter thoroughly before reassembling, making sure that the filter is not obstructed.

filter, remove the connector assembly from the top of the tank and carefully lift out the entire unit.

Remove the propeller and clean and lubricate the propeller shaft. If the drive pin is worn, it should be replaced. If the propeller is bent or nicked, have it repaired or replaced.

Drain the gear case and refill it with the type of lubricant recommended in your Owner's Manual. To do this, two plug screws must be removed. The drain plug is located on the skeg of the lower unit and the oil level plug is found above the cavitation plate. Factory recommended lubricant can be purchased from marine dealers in handy tubes. When filling, insert the tip of

the tube in the lower opening and fill until the oil starts to run out of the upper opening. Keep the tube inserted until the upper plug screw has been replaced. Then remove the tube and replace the lower plug screw.

The external parts of your engine should also be prepared for winter storage. If your outboard is equipped with a Fiberglas hood, apply a coat of auto wax to the hood. External metal parts are best protected by wiping them down with a lightly oiled cloth.

The motor should be stored in an upright position. Motor stands are available from marine dealers or can be easily constructed with a few pieces of two-by-four lumber. To keep the dust off, the motor can be loosely covered with an old blanket or other porous material. It should not be stored in an airtight container.

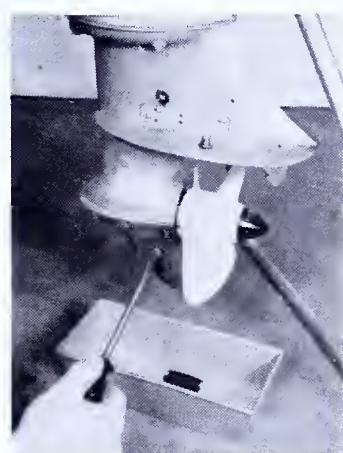
That's all there is to it. Take an hour or so now to properly prepare your motor for winter storage and when spring rolls around, you'll be mighty glad you did.



EMPTY FUEL TANK before storing. Fuel left in a tank all winter can lead to hard starting in the spring. Besides that, gum deposits may form in a tank left partially filled. It's a good idea to clean the filter in the tank. To get at it, remove the connector assembly as shown above.



DON'T FORGET THE EXTERIOR parts of the engine. The Fiberglas motor cover is best protected with a coat of auto wax. Other exterior parts should be wiped down with a lightly oiled cloth. If the motor has been scratched, spray cans of matching touch-up paint are available.



DRAIN THE GEAR CASE and refill it with the type of lubricant recommended in your Owner's Manual. The drain plug screw is located on the skeg. The screw plug above the cavitation plate must also be removed. Insert the tip of the tube of lubricant in the drain opening and fill until the oil starts to come out of the upper opening.

Take Advantage of Free Boating Courses Offered

Although cold weather and frozen lakes may put an end to the active boating season, boatmen can take advantage of the off season winter months to learn more about their favorite pastime. It is suggested that all recreational boatmen look into the free instruction programs offered by the U. S. Coast Guard Auxiliary and the U. S. Power Squadrons. Both organizations are made up of civilian volunteers interested in promoting better boating.

The USCGA, through its local groups, offers three courses: Outboard Motorboat Handling (1 lesson); Safe Boating (3 lessons); and Basic Seamanship and Safe Boat Handling (8 lessons). For more information as to where and when these courses are scheduled for your area, write to your District Coast Guard Office or the U. S. Coast Guard, Washington 25, D. C.

The U. S. Power Squadrons (there are over 300) also offer free boating instruction courses in cities throughout the country. More information can be obtained by contacting the Squadron Commander in your area or The U. S. Power Squadrons, P. O. Box 510, Englewood, N. J.

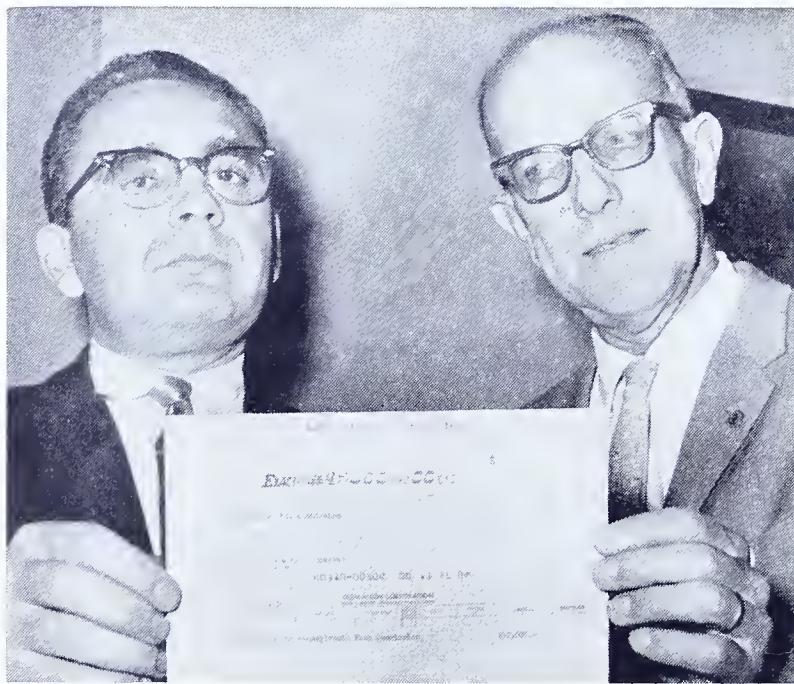
Use Strong Line on Trailer Winch

If you need a new line for your trailer winch, don't substitute clothesline or any other inferior quality line that will "suffice."

The Evinrude Boating Foundation suggests that you check your winch every month or so, according to the amount of trailering you do. Don't take chances. A great deal of strain is placed on the winch line and if it becomes worn or damaged, it might snap when needed the most some day. Also, always use a good quality line; it will pay off in the long run.

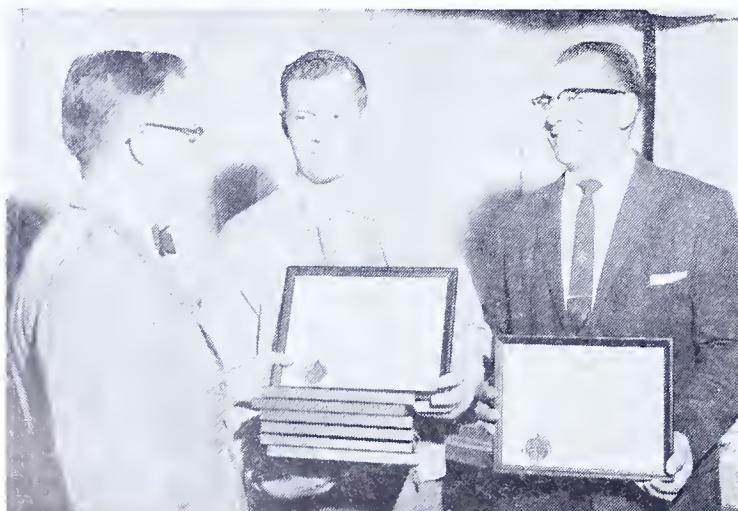
Foul Weather Tip

Heed nature's warning and put for shore when signs of a storm appear. But, if you should be caught in open water, steer your boat into the waves and reduce speed. Keep the center of gravity low by having passengers sit on the floorboards.



-UPI Photo

POLLUTION PAYMENT . . . Pennsylvania State Attorney General David Stahl, left, presents to Dr. Albert S. Hazzard, Assistant Executive Director of the Pennsylvania Fish Commission, a check for \$45,000 from Glen Alden Corporation in settlement of a major fish kill in the North Branch of the Susquehanna River. It is believed to be the largest payment for a single fish kill in the United States.



WARDEN OF THE MONTH AWARDS are presented by Conservation-Education Division chief, Russell S. Orr (left), to District Fish Wardens Walter Lazusky (Lackawanna) and Stephen Shabbick (Wyoming). The award is based on the promotion of the **PENNSYLVANIA ANGLER**, the Commission's monthly magazine.

FISH COMMISSION PERSONNEL discuss instructions and information presented them during Pleasant Gap session.

Field Personnel at Pleasant Gap Meeting



EXECUTIVE DIRECTOR DAY addresses a meeting of Fish Commission field personnel during an all day session held October 9 at Pleasant Gap.

A general meeting of Fish Commission field personnel, including all members of the warden force, maintenance personnel, biologists and hatchery superintendents and foremen, was held October 9 in Pleasant Gap.

Commission President Maynard Bogart presided at the meeting, which also was attended by Commission Vice President Joseph Critchfield and Commissioners Albert Hinkle, Jr., and Raymond Williams. Executive Director Albert M. Day addressed the group and conveyed to the men numerous instructions concerning Commission policy regarding many Commission actions and activities. Chief Law Enforcement Officer William Britton and Administrative Officer Paul O'Brien also addressed the group and answered questions regarding law enforcement and administrative matters.

Russell S. Orr, chief of conservation education and public relations, presented the field personnel with instructions for a **PENNSYLVANIA ANGLER** Christmas sales campaign. He also provided the personnel with Commission publications to be distributed in their respective districts.



PENNSYLVANIA ANGLER

Tioga Breaks Ground on Mill Creek



Above, a bulldozer begins work on Beechwood Lake, a 67-acre reservoir developed under P. L. 566. The permanent pool will be used for public fishing. Sponsors of the project are the Tioga SCD, the Tioga County Commissioners and the Pennsylvania Fish Commission with the assistance of the U. S. Soil Conservation Service.

Below, three distinguished figures play "scrub baseball" with the official ground-breaking spade. They are Maynard Bogart, president, Pennsylvania Fish Commission; Ivan McKeever, State Conservationist, Soil Conservation Service; and Stanley Hamilton, Tioga SCD chairman.



YULE LOG . . . One of "Merrie England's" most enjoyable holiday customs was bringing in the massive yule log. A log from the ash tree was most highly regarded because of the legend that Mary washed and dressed the Baby Jesus for the first time by the light of an ash-wood fire. . . . The flame of the yule log was considered symbolic of the light that came down from heaven when Christ was born. In some places the log was brought in on Christmas Eve by the servants. Tradition says that while the log burned the hired hands did not have to work. Of course they would hunt for the largest log they could find!

Jack Moore Takes State Fishing Championship Tourney at Tidioute



CHAMPION FISHERMAN OF PENNSYLVANIA, Jack Moore, is crowned by Paul F. O'Brien, Administrative Officer of the Pennsylvania Fish Commission. The 25-year-old 1962 champion is a native of Tidioute, the site of the fishing competition held October 13 and 14. On left is Leroy Schenck, master of ceremonies of WNAE Radio Station of Warren, who presented the big trophy. District Fish Warden Raymond Hoover is seated.

Jack Moore, 25-year-old native of Tidioute, now residing in Pulaski, Pa., took the 1962 Pennsylvania State Fishing Championship Tournament at Tidioute, Pa., October 13 and 14. Pennsylvania anglers from state-wide points converged on the 20-mile stretch of the Allegheny River there in a competition staged annually by the Tidioute Area Chamber of Commerce. Other finalists in the various classes were: Paul Viglo, Warren, Pa.; Daniel Gross, Pittsburgh, Pa.; Nick Jupin, Charleroi, Pa.; Robert Meyer, Pittsburgh, Pa.; Carl E. Sokalski, New Kensington, Pa.; Dennis Okorn, Bridgeville, Pa., and Robert Reed, Irwin, Pa.

Anyone may compete in the tournaments . . . men, women or juniors. They must be residents of Pennsylvania to receive the Championship Trophy. No entry fees are permitted, required or received.

Angler with the highest point total wins the big trophy and an all-expense-paid vacation to the World Series Fresh-water Sports Fishing Championship Tournament.

Fishing Featured in Potter County Souvenir Edition

While fishing is a feature of the Souvenir Edition of Coudersport and Potter County issued by the Potter Enterprise, the entire world of the outdoors is presented in all its unspoiled beauty. Along with the special edition you can secure a map of Potter County by request to The Potter Enterprise, Coudersport, Pa., enclosing a four-cent stamp.

Warden Dean Davis Retires



Dean R. Davis, R. D. 4, Punxsutawney, Pa., started working for the Pennsylvania Fish Commission October 1, 1936, and will retire December 28, 1962. The first ten years he served both Jefferson and Indiana Counties. There were times during his tenure that he also served parts of Armstrong and Clearfield Counties.

Warden Davis is well known and respected by all sportsmen organizations, as well as by his fellow workers. Said the chief enforcement officer of him, "I have never received one complaint about him or his work in the fourteen years I have been his chief. His work has been exemplary."

STREAM NOTES

Senior anglers have been really fishing hard at Laurel Lake, recently stocked with trout. **District Warden Thomas Karper** (Cumberland and West Adams) checked anglers who had put their rods away for the year but when radio and newspaper accounts of the stockings appeared they took a second crack at it with much success.

#

District Warden Richard Owens declares the Juniata River and Raystown Branch waters have produced in '62 some of the best bass fishing in years. It has been common for anglers to hook and play from 20 to 30 bass in an evening. The Lewistown area has been very productive on rubber crabs and hellgrammies. The fingerling trout program received much favorable comment.

#

Dry weather and low waters have caused plenty of trouble last summer but it helped the eel rack operators on the Delaware River. They had a chance to build wing walls much tighter than in past years and catches have been extra good this year with 80 to 240 eels a night common takes. Dressed eels sell for 45c per pound, smoked—90c per pound, and live eels 35c a pound. Dealers have noted the average size is running larger than in the past because more food has been available in the river reaches. The baby shad migration was so great this year it was hard to estimate their numbers. Very large schools were noted as early as August 31 and river men figure they were two weeks early in schooling up for the downstream migration.—**District Warden Harland F. Reynolds** (Wayne).

The need for stream improvement in northern Clinton County has been talked about for a long time with little or nothing accomplished. Taking advantage of low water this past summer, the Retired Men's Club of Revono and several sportsmen from the Western Clinton Sportsmen's Association decided to build some dams on Hyner Run, Paddy's Run and Cook's Run. With the help of Charles Keiper, District Game Protector, and his power saw, two well constructed log dams a day were built. The group plans to start earlier next year and would like a better turnout from other clubs. Those participating and their ages were: John H. Brown—81, John Shuey—74, E. R. Rauch—71, H. M. B. Weicksel—70, H. A. Steiger—68, C. S. Lunger—68, R. B. Drake—62, and C. H. Bergdahl—55.—
District Warden Lloyd Wilson (Clinton).

#

Ward Norton of Albion told **District Warden Raymond Hoover** (Crawford) this was the best year of trout fishing he has ever enjoyed despite extreme low water conditions. Norton said he caught and released over 600 trout during the season, using mostly artificial baits. Included in his total catch were two lake-run rainbows, one from Crooked Creek, the other from Elk Creek. These fish were in the 25-inch class.

#

Through the cooperation of the Pennsylvania Fish Commission and sportsmen's clubs of Potter County, a fall stocking program was planned. The program called for a 50 per cent fall stocking and a 50 per cent pre-season stocking. Object of the program is to discourage truck following during the open season, advantage of better road conditions and a chance for better distribution over entire streams.—**District Warden Kenneth Aley** (Potter).

#

While on a routine patrol of Chester County, I checked a fisherman on one of the streams flowing into the Schuylkill River. He was obviously a former deep sea fisherman and was seated on the bank when I approached. I asked if he had caught any fish and the answer was negative. Said he, "I'm waiting for the tide to come in, then they should start biting!" I'm certain his patience gave out long before the tide came in there.—**District Warden Ray Bednarchik** (Chester-Delaware).

#

Muskie fishermen have been working hard on the Erie County lakes since waters cooled. Several muskies have been taken in the 31-38-inch class but none of the larger ones which fishermen see coming close to their boats and making a big swirl on the water. These tactics throw out big thrills and challenges for muskie men.—**District Warden Norman Ely** (Erie).

#

While attending the Fish Commission exhibit at the Bloomsburg Fair, a gentleman approached me, said he would like to subscribe to the PENNSYLVANIA ANGLER. He took the 3-year subscription for \$5. When asked which maps he wanted free, he said he didn't need any because he had already purchased the entire set of 46 for the special \$5.20 charge. I then asked where he fished. To my amazement he replied he didn't fish; said he would most certainly like to but he was somewhat like a man without a country, was born on the high seas and considered an alien! Although he couldn't fish he enjoyed accompanying his friends, watching them fish and enjoyed reading the ANGLER. He was overjoyed to learn he could now purchase an alien fishing license.—**District Warden Stephen Shabbick** (Wyoming).

* * * * *

The original meaning of "carol" was a ring dance . . . and the carolers danced as they sang.

Special Fish Warden Helps Rescue Fishermen

Two fishermen narrowly escaped drowning in 20 to 25 feet of water on Canadohta Lake while fishing the south side of the lake just east of the Pennsylvania Fish Commission picnic spot. One angler said he stood up in the boat to change the light, the boat capsized throwing both persons into the water.

Their cries for help were heard by Edward Tutay, Washington, Pa., who was fishing nearby, and Pennsylvania Fish Commission special warden Alex A. Aversa and son Joseph, Union City, Pa. They arrived at the capsized craft just in time to grab one angler who had collapsed after going down twice. The Titusville Herald reported both soaked anglers refused medical attention and had lost equipment valued at \$500.

District Warden Kenneth G. Corey (Warren) heard a tale about a fishing trip that took place some years ago. Two anglers left for an early morning fishing trip at Chapman dam. Arriving there, the area was so foggy they could hardly follow the path down to the water. They baited up and settled down to await a bite. None came . . . and little wonder. When the fog lifted, to their surprise, there was no water in the dam! They didn't know the dam had been drained!

Ken Clugston, Duncannon, Pa., on a single cast, caught two 16-inch bass, one weighing 2 lbs., the other 2½ lbs., while fishing Shermans Creek out of Dellsburg. Clugston said the fish hit a jitterbug and put up quite a fight, the first time he has hit into a double.

According to Johnny Nicklas, chief photographer of the Fish Commission, an osprey has been on constant patrol of the Lehigh River near suburbs of West Catasauqua this past season. The big bird has attracted a great deal of attention as he soars and swoops over the river reaches searching for a fish dinner.

Russell Kettering, Cleona, Pa., took his sons—Brian, Scott and Craig—in a boat on Water Works Dam to catch turtles. While rowing the boat on the north side of the dam there was a startling splash and into the boat jumped a 19½-inch, 4-pound largemouth bass. The four crewmen took a couple of healthy swipes apiece at the fish but couldn't bring him to heel until the elder Kettering sat on him. The reporter who covered the story for the Lebanon Daily News noted . . . "the bass at the Water Works Dam are large and hungry and mighty anxious to be caught . . . all you need is a boat . . . they'll jump right in!"

To the child, Christmas is wonderful because it is so new; to his grandfather, Christmas is wonderful because it is old.

Though the ancient Chinese exchanged New Year's cards, the first known modern Christmas card wasn't sent until 1843. Sir Henry Cole, an imaginative and distinguished London museum director, had his artist friend, J. C. Horsley, design 1,000 cards for him which bore the now standard greeting: "A Merry Christmas and Happy New Year."



HILLSIDE ROD AND GUN CLUB members of Blossburg, Pa., shown releasing 10,000 trout in public waters this past spring which they raised in the club nursery waters.

CLUB NOTES

Lehigh County Membership

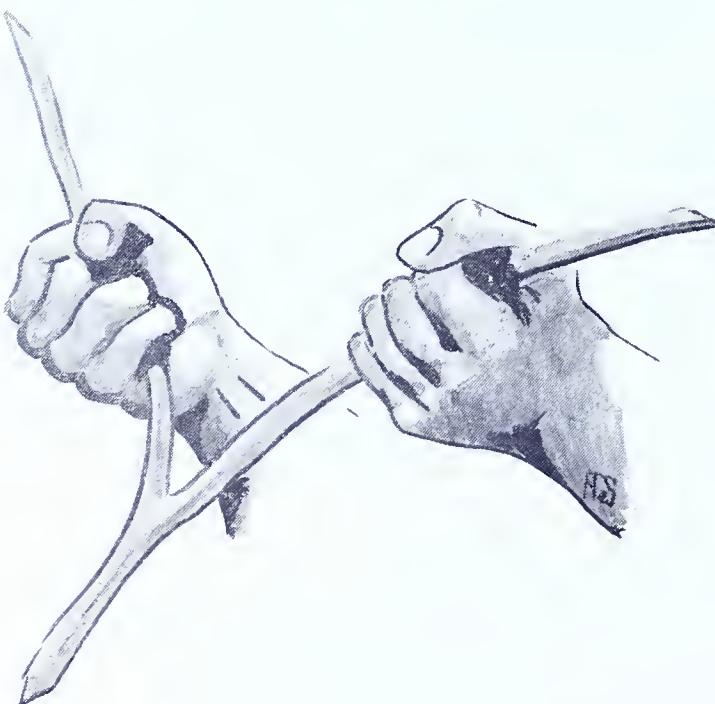
Over 8,000 Mark

The membership of the Lehigh County Fish and Game Protective Association has now passed the 8,000 mark. The club's Membership Chairman Jack Overhold announced the figure at 8,004 members at a recent meeting with Mark Passaro presiding. President Passaro complimented the committee on its bang-up job in the all-out effort to boost the club to its unofficial goal of 10,000. It was announced that fly-tying classes would begin at Steckel's Hall and all Juniors were asked to make reservations for the classes. More than 7,000 spectators viewed the more than 3,000 anglers trying for the trophies in the club's fishing contest on the Little Lehigh.

West Chester's Annual Fishing Rodeo Draws 200 Youngsters

Over 200 youngsters registered in the 12th annual fishing rodeo sponsored by the West Chester Fish and Game Association, Inc., at Russell Jones' pond. Chairman Charlie Andress distributed nice prizes to the winners. Eddie Dunn and Teresa Mason won the bass contest; Denise McMonagle and Tom Kelly took bluegill honors; Toby Cowan and Victor D'Annunzio took the catfish prizes. President Robert Brehm and committee helped with the arrangements.





By ALBERT G. SHIMMEL

When the urban dweller of today is touched with a nostalgia to drink from the springs of his youth, he often finds the Chalice of the Hills gone dry. The brook that laughed its way toward the creek is reduced to a mere trickle. The gravel beds where the brook trout came to hide its eggs, resplendent in its spawning colors, he walks dry shod.

He turns sadly away and remembers a colorful character of his boyhood, the Water Dowser. When wells were to be dug, underground water courses traced or buried drainage ditches located, his services were in brisk demand.

This gifted individual brought to the problem a great dignity and a sharp Barlow knife. With the latter he procured a stick with slender forks. It might be willow, peach, hazel or other chosen species.

He held the forked stick in an upright position, grasping one end of each fork tightly, palms up and thumbs locked against the index finger. The country boy followed his slow march back and forth and felt ghostly prickles race up his spine when the fork turned downward to indicate water below. He watched with fascination when the pull was sufficiently strong to break the bark in the Dowser's hands.

Let skeptics mock and call hoax, yet let him seek for such a one and watch him at his work. He may not believe but he will be piqued to curiosity.

The springs are dry and waters run much deeper than before. The Dowser cannot bring them back but he still can trace their course with hazel branch and simple faith.

Tackle Tips

MOTHPROOF FLY CHEST

By DON SHINER

Ever flip the lid of the fly-tying box and jump back as several tiny, dusty millers flutter away? These are not trout flies that have suddenly breathed life. They are clothes moths! These damaging, household insects, actually prefer this fly material and raise havoc with the valuable furs and plumages.

Prevent this major catastrophe by storing the fly material in a sealed glass jar, together with a handful of naphthalene flakes. Or, even better, build a small cedar chest. Feathers and fur will remain relatively untouched in this type container, for the odor of aromatic red cedar is repulsive and most obnoxious to these dusty millers and their larvae.

And when you are building one of these chests, build two of them. Store the raw fly materials in one; use the second for a fine tackle box for the dry, wet, nymph and streamer flies, leaders, extra lines and reels and other trout fishing accessories.

The majority of tackle boxes manufactured today are designed basically with the bass fisherman in mind. These bulky boxes are fitted with countless trays and compartments for storing the usual assortment of bass plugs and spoons, but are not suitable for flies. Few tackle boxes are designed with the troutman's tackle in mind, let alone built of cedar lumber to ward off attacks from destructive clothes moths. The cedar chest described here will serve both functions.

Glance over the how-to-do-it photographs shown on these pages. Note that the box measures 9 x 5 3/4 x 3 1/4 inches. This size provides ample space for a good assortment of fly material and/or trout gear. Enlarge these dimensions if you have an exceptionally large amount of material.

To fabricate this box, cut the 1/4-inch cedar sheeting boards to the suggested size. Apply a water-resistant glue to all edges and clamp all joints for at least 24 hours until the glue has hardened. A few small brads at each corner will assist in keeping the box intact.

There are several tricks the novice can use when constructing a small box such as the one shown here. For example, permit the smooth side of the lumber to face inside. The exterior can always be sanded to a satin smooth finish when the box has been assembled. To have a well fitting lid that matches the lower portion of the chest, assemble the sides, top and bottom as a single unit. Then, after the glue has dried, saw the box apart, so that a "frame" remains around the lid.

Give the exterior (only) surface one or two coats of rod varnish. The untreated interior will fumigate the flies and fly material with the pleasant odor of cedar. Fit the chest with hinges, clasp and handle.

Aromatic red cedar is one of North America's most beautifully grained woods. This wood provides a handsome grained tackle box and one that assures a safeguard against damaging moth.

* * * * *

Spend less time looking forward to this Christmas, and more time looking backward to the first Christmas.

* * * * *

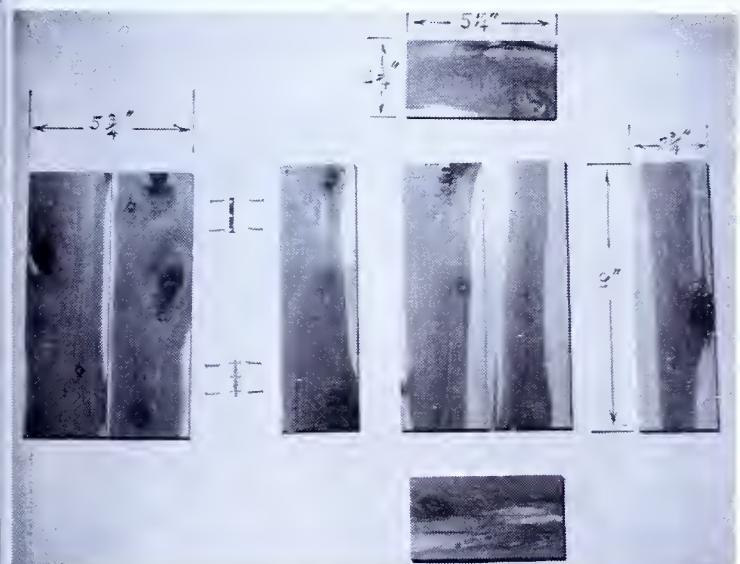
We are such little men when the stars come out!



To prevent moth damage to fly materials, build a cedar chest.



About six feet of four-inch cedar sheeting lumber will build a box this dimension.



Cut lumber to size and apply water-resistant glue to all edges. Clamp until dry.



Sand exterior of box to a smooth satin finish, then install hinges and clasp.



This cedar chest becomes a perfect trout fisherman's tackle box. No moth damage to flies stored in this handsome chest.

OUTDOOR BOOKS

The Book of Trees by William Carey Grimm. The Stackpole Company, Telegraph Press, Harrisburg, Pa., 1962. 487 + xxviii pages. Price \$10.

As a reference this excellent book is hard to beat. As a guide to the identification of native trees, it includes all of the trees found in eastern North America, north of subtropical and tropical Florida and east of the Mississippi River.

Since this book came to me it has hardly had time to rest upon the shelf, having been thoroughly shuffled and passed from student to student in the family and in the neighborhood. Teachers are enthused and this is a recommendation in itself.

The line drawings by the author are good. Leaves, buds, twigs, blooms, fruit and bark are adequately displayed. Two sets of keys to identification are provided in conjunction with the illustrations, one for the characteristics of the trees in summer and the other for winter.

—G. F.

THE UNIVERSAL ANT

By CHAUNCY K. LIVELY

The ant is the scourge of the picnicker, the bane of the meticulous housewife, and the distraction of the home lawn putterer. But fly-fishermen everywhere regard him with affection because his presence on the water portends surface-feeding fish.

Although this busy little member of the Hymenoptera clan is a landlubber, he manages to get into the swim often enough and in such numbers that he is well known to most insect eating fish. Particularly during the mating season swarms of ants on the water will often start a rise of trout equal to the surface-feeding activity during a good Mayfly hatch.



Magnified view of black ant.

And not only trout, for a group of us watched some fine Allegheny River smallmouth feed rather selectively last fall on small ants which were drifting on the surface by the hundreds. The bass were behaving in a troutlike fashion, taking the ants in successive dimpling rises, and we found it difficult to interest those bass with our poppers and other wares until the ants were gone and the fish again resumed their usual feeding habits. Had we had our trout gear with us I'm certain we could have enjoyed the unique experience of taking river smallmouth—and some were of substantial size—on ultra light gear, fishing tiny dry flies to the rises. I don't intend to be caught short again, for my bass kit now has a special compartment devoted to the floating ants in a wide variety of sizes.

Good wet fly ant patterns have been in use for some time and these are all good all-around flies. But when ants are on the water the imitation should be dry, floating low in the surface film—a condition which makes it a little more difficult to follow with the eye than the high-riding flies. The tiny spent ants developed by Vince Marinaro and Charlie Fox on the lush limestone meadow streams are indispensable dry flies for any trout water.

The big Carpenter Ant swarms in autumn, generally after our regular trout season is closed, but now that we have the wonderful FISH FOR FUN trout streams open the year around we can look to the big ant for some mighty interesting surface fishing after the leaves have turned. The Carpenter Ant also furnishes good fall fishing to better than average pan fish in lakes—and at this time of the year these little gamesters are in prime condition.

My favorite imitation of the Carpenter Ant is easy to make and floats well when a little line dressing is worked into the body with the fingertips. The dressing is as follows:

Carpenter Ant

Hook—No. 16 to No. 10, fine wire

Body and legs—deer body hair, dyed black

Tying thread—2/0 nylon, black

Tying Procedure:

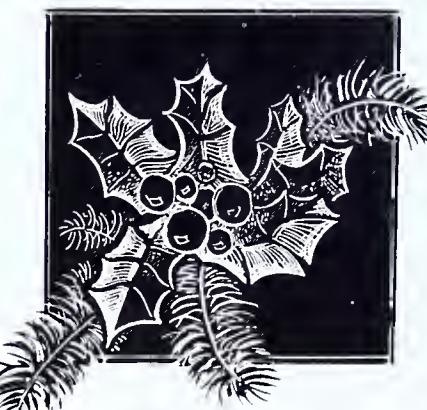
Spiral tying thread the length of hook shank and half-hitch at center of shank. Cut a tuft of deer hair and hold it parallel to hook shank with butts extending just forward of center of shank where thread is anchored. Take two turns of thread around hair, pull tight, and spiral thread tightly around hair and hook back to bend of hook and forward again to center of shank. Pull the long ends of hair over the back and take two turns of thread around hair and shank and pull up tight, forming the large abdominal bulge. Spiral thread forward on hook three or four turns and again take a turn around hair and hook to form smaller bulge. Repeat to form a small bulge at head, tie back a few hairs to represent legs, trim off excess hair at head and whip finish.



Deer hair Carpenter Ant—see text for dressing.

The late Edward R. Hewitt, one of America's most famous pioneer fly-fishermen, is said to have once confounded his guests when ants were on the water by taking trout after trout which had refused the flies of his fellow anglers. Explaining his secret, the old master showed his little imitation ant and pointed out that trout particularly like ants because of their bitter taste. When asked how he knew they were bitter he replied, "I just tasted one."

Truly a scientist's approach.



The Feathered Fisherman



ACTION—where the girls are!

The Feminine View

WHAT WILL PEOPLE THINK?

By MARION LIVELY

I sometimes wonder what people think.—Not often, but occasionally when a few of our activities attract notice and sometimes even comment. I know the neighbors thought it a little odd that we were out on the snow-covered lawn trying out that new rod on Christmas morning.—And that our daughters, at the age when most girls are playing with dolls, enjoyed nothing so much as getting out their rods and casting at targets around the lawn.—Or that we spend a great deal of time fishing and then never keep any fish.—Or that I get fishing jackets for Mother's Day, a new rod for Christmas, asked for a camp oven for my birthday and am delighted with new waders for our anniversary. But what caused us to be the cynosure of all eyes was an ordinary pair of roller skates.

When our girls were first starting to fish, they were having some difficulty mastering the techniques of netting a fish. My husband came up with what seemed to me to be a very practical and ingenious solution to the problem; he tied roller skates to the end of their lines and we all went out to the cement driveway where Mom and Dad demonstrated and the girls practiced reeling in and netting their roller skates. The girls had a grand time and some of the neighborhood children gathered 'round to try their hand at this fascinating new game. But the grown-ups! Passing cars slowed to a crawl, people shook their heads and looked amused, and one man went so far as to twirl his index finger while pointing it at his ear. Now any other fisherman knows we're a perfectly normal family, but what do the others think? Never mind; I'm very much afraid I know.

Americans have come to love air conditioning better than trees or gardens, bulldozers better than hillsides or streams, and they have missed the big lessons that man's great mission is not to conquer nature by main force, but to cooperate with her for his own purposes.—Lewis Mumford, Izaak Walton Magazine.

There were no "No Trespassing" signs posted along the stream I was exploring to warn me that I was on private property, but I did not need any man-made signs to inform me. I had not walked 50 feet along the water's bank before I knew I was a trespasser, for a kingfisher let out a loud rattling cry to let me know I was trespassing upon its range.

Then I saw the bird as it dropped down from its perch on a limb that jettied out over the water and wing upstream. When it had gone far enough it made a wide circle and returned to the exact spot it had left five minutes before. Anyone hearing the call of the kingfisher never can forget it, for no other bird has its peculiar rattle.



OWEN PENFIELD FOX

The kingfisher is the minstrel man of the streams. Its rattle sounds like that of the end men when they shake their bones. It is a good fish catcher and knows where to find them. Men who fish along the streams are sometimes quite jealous of the kingfisher when it takes over the fishing rights and condemn the bird for taking too many small fish.

Many an angler while fishing shaded pools is disturbed by the shrill rattling call of the kingfisher. It will wing up stream not too far, make a stop to rest on a limb and then take a downward dive and come up with a fish in its bill. The head foremost plunge the bird makes into the water causes a great splash.

The voice of the kingfisher is as odd as the spots it selects to raise its young; in a chamber at the end of a long burrow dug in the bank along the stream.

The rusty brown band across the breast of a kingfisher identifies the female, one of the rare instances among birds in which the female sports more color than the male.—Owen Penfield Fox.

When everything else fails . . . read the instructions.

The worst thing about touring or living in a trailer is that there's no place to put anything except where it belongs.



Dear Sir:

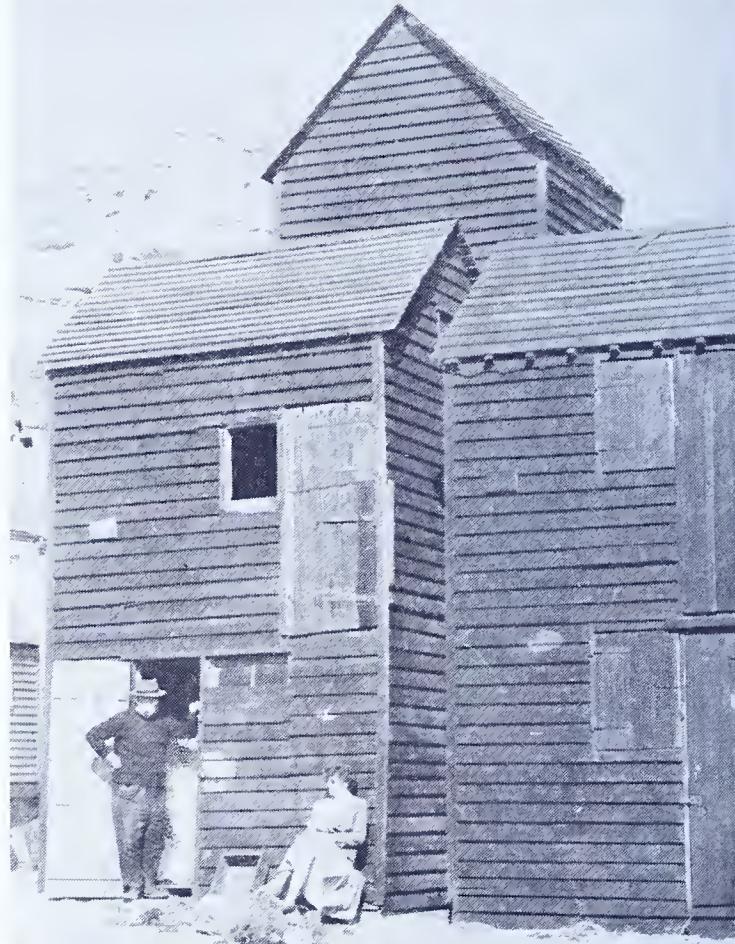
I wish to thank you for the copy of "Fishing and Boating in Pennsylvania." I am certain it will be most helpful. Concerning the story in the September 1962 issue of the PENNSYLVANIA ANGLER "The Lucky Bone" by Bill Walsh, I have a pair of these bones from a sheepshead fish given to me by my mother-in-law. She brought them from Michigan and gave them to me a week before I received my copy of the ANGLER.

Purcie S. Gadley
Baxter, Pa.

Dear Sir:

I have been receiving the PENNSYLVANIA ANGLER for three or four months now and just thought I would drop you a line to tell you how much I enjoy it. The articles and features are most interesting and I read each issue from cover to cover. Congratulations to you and your staff for an outstanding publication.

John J. Sabine
Somerville, N. J.



FISH NET SHOPS at Hastings, England, are unique and rare in the world. They have been features of Hastings since before Queen Elizabeth the First's reign. Some Scandinavian features in their construction may even date back to the original settlement of Hastings. The net shops vary in height, the tallest stands 3 stories, 30 feet high with pitched roof on concrete base, eight feet square. Forty-three of these shops are still in constant use for string nets and fishing gear.—R. D. Barrett-Lennard.

For Yuletide Gift Package

CLIP HERE-----

Enclosed is \$

for

gift
subscription(s)

1 year (12 issues)---\$2.00
3 years (36 issues)---\$5.00

To be sent to

Indicate

Name (please print)

Address

Zone

new

renewal

Subscription—gift card sent by (name)

Address

Make check or money order payable to

PENNSYLVANIA FISH COMMISSION

Cash sent at your own risk, stamps not acceptable.

Harrisburg, Pennsylvania

No Shopping! No Wrapping! No Mailing!

THE EASIEST — MOST APPRECIATED

Christmas Gift

YOU'LL EVER SEND, IN ONE BIG PACKAGE ATTRACTIVELY GIFT WRAPPED WITH A WARM, HOLIDAY GIFT CARD ENCLOSED FROM YOU TO A RELATIVE—FRIEND OR ANGLING BUDDY



\$2 — Two Dollars ONLY Wraps it up — \$2
IN THIS
Yuletide Package

of materials to be used in planning next year's fishing trips

- (1)—12 ISSUES of the **PENNSYLVANIA ANGLER** — a one-year subscription — 12 ISSUES
Sample copy enclosed—subscription starts with January 1963 issue
- (2)—**PENNSYLVANIA WATERS-HIGHWAY MAP**
- (3)—**COPY** of the new booklet—"FISHING AND BOATING IN PENNSYLVANIA"
An Angler's and Boater's handy reference to state-wide fishing waters, muskellunge areas, boating access areas, fly-fishing and fish-for-fun areas, fish identifications plus maps and a ready index.
- (4)—**FULL COLOR** booklet describing Pennsylvania's vacation and travel opportunities.

You Fill Out Order Form on Page 24 Opposite . . . We'll Send Gift Package Promptly







